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FISHERY RESOURCES UPSTREAM
OF THE OLDMAN RIVER DAM

R.L. & L. ENVIRONMENTAL SERVICES LTD.

FISHERY RESOURCES UPSTREAM
OF THE OLDMAN RIVER DAM

Prepared for

Alberta Environment
Planning Division

by

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Jim O'Neil - Project Leader
Larry Hildebrand - Project Biologist
Curtiss McLeod - Advisor/Field Assistant
Gary Ash - Advisor/Computer Analyst
Chantal Pattenden - Field Assistant

EXECUTIVE SUMMARY

BACKGROUND

Placement of a dam on the upper Oldman River has been considered for many years. On 8 August 1984, the Government of Alberta announced that a dam would be constructed on the Oldman River northeast of Pincher Creek. The present need has arisen due to an ever-increasing demand for additional water supply for irrigation and low-flow augmentation in downstream sections. This study involved an investigation of aquatic habitat, fish resources and sportfishing activity in reaches of the Oldman, Crowsnest, and Castle rivers, upstream of the dam. The primary objective was to assess sportfish populations (distributions, population densities, etc.) and sportfishing use (angler use, harvest patterns, etc.) and to delineate critical habitats (spawning, rearing, etc.) with a view towards determining needs and opportunities for mitigation.

The study area for the habitat and fisheries components included innundated sections of the three rivers and representative reaches situated immediately upstream. On the Oldman River this involved a total of 36 km, of which 22 km were situated from the damsite to the reservoir Full Supply Level (FSL). An additional 14 km were located upstream of the FSL . The Crowsnest River was investigated from the Oldman River confluence to Lundbreck Falls, a distance of approximately 16 km. Of this total, 9 km was situated within the reservoir flood zone; the remaining 7 km was located above the FSL. Approximately 27 km of the Castle River was investigated, including 12 km below the FSL and 15 km situated upstream. The combined study area (including the three rivers) was approximately 79 km; 43 km were located below and 36 km above the FSL. The sport fishing study area also extended to known high-use sites in close proximity to the study area (e.g., Summerview Bridge crossing on Oldman River, Highway 507 crossing on Crowsnest River).

Fisheries and habitat field studies were initiated in mid-August and terminated in late October. The sport fishing survey commenced on 1 August and extended through until 3 November.

SPORTFISH POPULATIONS

Five species of sportfish were encountered in the overall study area, including rainbow trout, brown trout, cutthroat trout, bull trout, and mountain whitefish. Rainbow trout was the most widespread and numerous of the trout/char species encountered in each of the three systems. Rainbow trout were particularly abundant in the Crowsnest River. Population densities in the north fork of the Oldman river were moderate although the average size of fish captured was small in comparison to the Crowsnest River. Rainbow trout population levels in the Castle River were low, particularly in relation to the Crowsnest River. Rainbow trout in the Crowsnest River exhibited substantially better growth and attained larger sizes than in the Oldman and Castle rivers. Rainbow trout in the Crowsnest River commonly reached lengths greater than 400 mm and occasionally exceeded 500 mm. Weights up to 2500 g were recorded during the present study, although larger individuals (up to 3500 g) have been reported by local anglers. In contrast, rainbow trout from the Oldman River rarely exceeded 300 mm, although the largest individual captured had a length of 432 mm and weight of 1200 g. In general, rainbow trout captured from the Castle River were less than 300 mm in length, however, the largest individual taken in the study was encountered in the Castle River (i.e., length of 571 mm).

Brown trout were recorded in the Crowsnest River and the Oldman River. The Crowsnest River supports a relatively small but well-established brown trout population. Only a few brown trout were captured in the Oldman River; these individuals were assumed to be seasonal migrants from the Crowsnest River. This conclusion is based on available collection data which indicates a sporadic distribution and no apparent spawning use. Brown trout from the Crowsnest River exhibit excellent growth and attain relatively large size (i.e., fish over 400 mm common; occasional fish may exceed 550 mm). The heaviest brown trout recorded by the study team weighed approximately 2700 g, although larger individuals are reported by local anglers (i.e., exceeding 3500 g).

Mountain whitefish were the most abundant sportfish in all study streams; they comprised over 80% of all sportfish captured. Population densities were highest in the Crowsnest River, followed by the Oldman River and Castle River. Sizes and growth rates achieved by mountain whitefish in the Crowsnest River were substantially greater than those recorded in the north fork of the Oldman River and the Castle River. In the Crowsnest River, significant numbers of whitefish were recorded in the 300-400 mm range, the occasional specimen exceeded 400 mm. In contrast, relatively few mountain whitefish in the north fork of the Oldman River and Castle River exceeded 300 mm. Weights of mountain whitefish captured in the Crowsnest River were generally less than 500 g although individuals in the 500-1000 g range were captured on occasion. The heaviest individual recorded was 1300 g. In the Oldman River most captured individuals weighed less than 350 g; the heaviest specimen recorded was 700 g. The majority of mountain whitefish collected from the Castle River also were less than 350 g; the heaviest individual weighed 660 g.

Although bull trout were recorded in each of three systems, the majority were captured in the Castle River. In general bull trout distribution was sporadic and most captured individuals were immature. Only one cutthroat trout was recorded; this individual was captured in the Crowsnest River.

IMPORTANT/CRITICAL HABITATS

The distribution of important/critical habitats for sportfish was investigated in the present study. These areas included rearing areas (for young-of-the-year and juveniles) and spawning areas for fall spawning species (brown trout and mountain whitefish). The study results indicate that a significant amount of feeding/holding habitat for adult rainbow trout in the Crowsnest River will be situated below the FSL. Approximately 60% of the available select habitats situated between the Oldman River confluence and Lundbreck Falls are within the flooded area. For adult brown trout and adult mountain whitefish approximately 60% and 40%, respectively, of select feeding/holding areas are located within the reservoir flood zone. With respect to juvenile age-classes, the inundation of available habitat will also be substantial (i.e., 54% for rainbow trout, 41% for brown trout, and 68% for mountain whitefish). In terms of spawning habitat, the majority of confirmed sites for brown trout and mountain whitefish in the Crowsnest River are situated above the reservoir FSL.

A substantial amount of select feeding and holding habitat for rainbow trout and mountain whitefish in the Oldman River is located below the FSL. As a percentage of the total study area (including 22 km below and 14 km above FSL), 86% and 74% of available select habitat for adult rainbow trout and mountain whitefish will be inundated. Feeding/holding areas for juveniles also will be subject to inundation (i.e., 59% of available select areas for rainbow trout and 72% for mountain whitefish). Considerable mountain whitefish spawning habitat also will be inundated (i.e., 12 of 15 of confirmed spawning sites situated upstream of the dam are within the flooded area).

In the Castle River, the reservoir will flood substantial holding/feeding habitats for adult rainbow trout and mountain whitefish. At present, however, this habitat is lightly utilized (i.e., low population densities). In terms of the total study area (including 12 km below and 15 km above FSL) 81% (rainbow trout) and 51% (mountain whitefish) of the select areas are situated below the FSL. For juvenile rainbow trout, 46% of the select holding/feeding areas are situated within the flooded area. Of available select habitats for juvenile mountain whitefish, in the order of 58% are located within the flood zone. Spawning use of the Castle River (within the study section) by mountain whitefish appears to be scattered and of low intensity.

SPORT FISHING IN THE STUDY AREA

The total effort expended by anglers in the Oldman River Dam Study Area above the damsite during the August-October period was estimated at 14 300 angler hours. Approximately 75% of this angling effort was expended on the Crowsnest River. The Oldman and Castle rivers contributed 11% and 14% respectively to the total effort above the damsite. Approximately 68% of the total angler effort (above the damsite) occurred upstream of the proposed flooded area. On the Crowsnest River, 52% of angling activity occurred in the vicinity of Lundbreck Falls Recreation Area. In total, sites above the flooded area supported 78% of the total estimated angler effort on the Crowsnest River. On the Oldman River, angler effort both within and above the proposed FSL was relatively light. In this regard, approximately 74% of effort on this system was expended at the Summerview Bridge site (Site OR1), situated downstream of the proposed dam. On the Castle River the most heavily used site (i.e., 58% of total angler effort) was the Canyon Bridge crossing. Approximatley 72% of angling effort on the Castle River occurred above the proposed FSL.

An estimated 4100 anglers fished in the study area upstream of the damsite during the period August-October; 66% of these anglers utilized the Crowsnest River. Below the damsite an additional 1400 (estimated) anglers were recorded at the Summerview Bridge site on the Oldman River. The Crowsnest River attracted a large number of non-local anglers (approximately 60% of those interviewed), particularly from the Lethbridge area and Calgary. The remainder or anglers originated from the Crowsnest Pass, Pincher Creek, Lundbreck, Cowley, and other regional locations; non-resident Canadians contributed 2% to the total. The Oldman River and particularly the Castle River were primarily local fisheries. Anglers from Pincher Creek, Crowsnest Pass, Lundbreck, and Cowley comprised approximately 60% and 80% of the total anglers interviewed on the Oldman and Castle rivers, respectively.

SECTION 1.0
INTRODUCTION

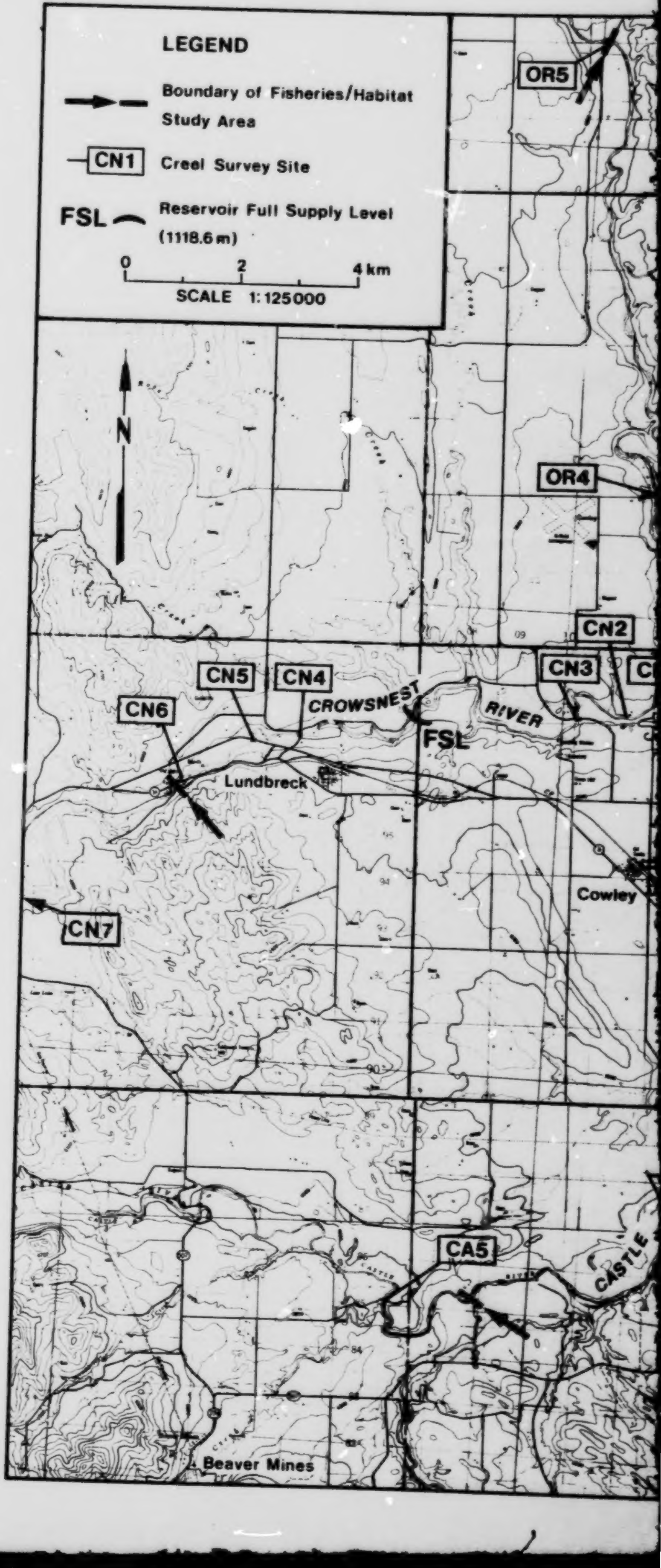
1.1 BACKGROUND

Placement of a dam on the upper Oldman River has been considered for many years. On 8 August 1984, the Government of Alberta announced that a dam would be constructed on the Oldman River northeast of Pincher Creek. The present need has arisen due to an ever-increasing demand for additional water supply for irrigation and low-flow augmentation in downstream sections. To ensure that environmental concerns resulting from the construction of the Oldman River Dam were addressed in a systematic and objective manner, the Planning Division of Alberta Environment set out a framework for a series of studies leading to the formulation of an Environmental Mitigation/Opportunities Plan. The mitigation plan will be completed in four general phases beginning in 1985 and extending into 1991. The four phases are as follows: 1) Overview (a) and Data Collection Phase (b); 2) Assessment and Mitigation Design Phase; 3) Implementation Phase; and 4) Monitoring Phase. The present study is a segment of the Data Collection Phase (1b) and relates to fishery concerns within the reservoir area and in contiguous upstream reaches. Field studies were conducted in the period from early August to late October 1985.

The major objectives of the present study were as follows: 1) to characterize and assess the fish populations, aquatic habitat, and recreational fishing losses associated with the Oldman River Dam, and 2) to identify potentially suitable mitigation concepts or enhancement strategies that might offset the resulting losses. This report includes information relating to inventory and impact assessment; detailed habitat mapping (1:5000 scale) is provided under separate cover. Mitigation and enhancement related topics are discussed in a separate report.

1.2 STUDY AREA

The study area included directly affected (i.e., innundated) and adjacent upstream reaches of three river systems: the Oldman River, the Castle River, and the Crowsnest River (Figure 1.1). Fisheries and habitat studies on the mainstem Oldman River extended from the North Fork Bridge to the damsite, a distance of approximately 36 km.


LEGEND
Boundary of Fisheries/Habitat Study Area
CN1 Creel Survey Site
FSL Reservoir Full Supply Level (1118.6 m)
0 2 4 km
SCALE 1:125000
N
OR5
OR4
CN2
CN3
CN5
CN4
CN6
CROWSNEST
RIVER
FSL
Lundbreck
Cowley
CN7
CA5
CASTLE
Beaver Mines

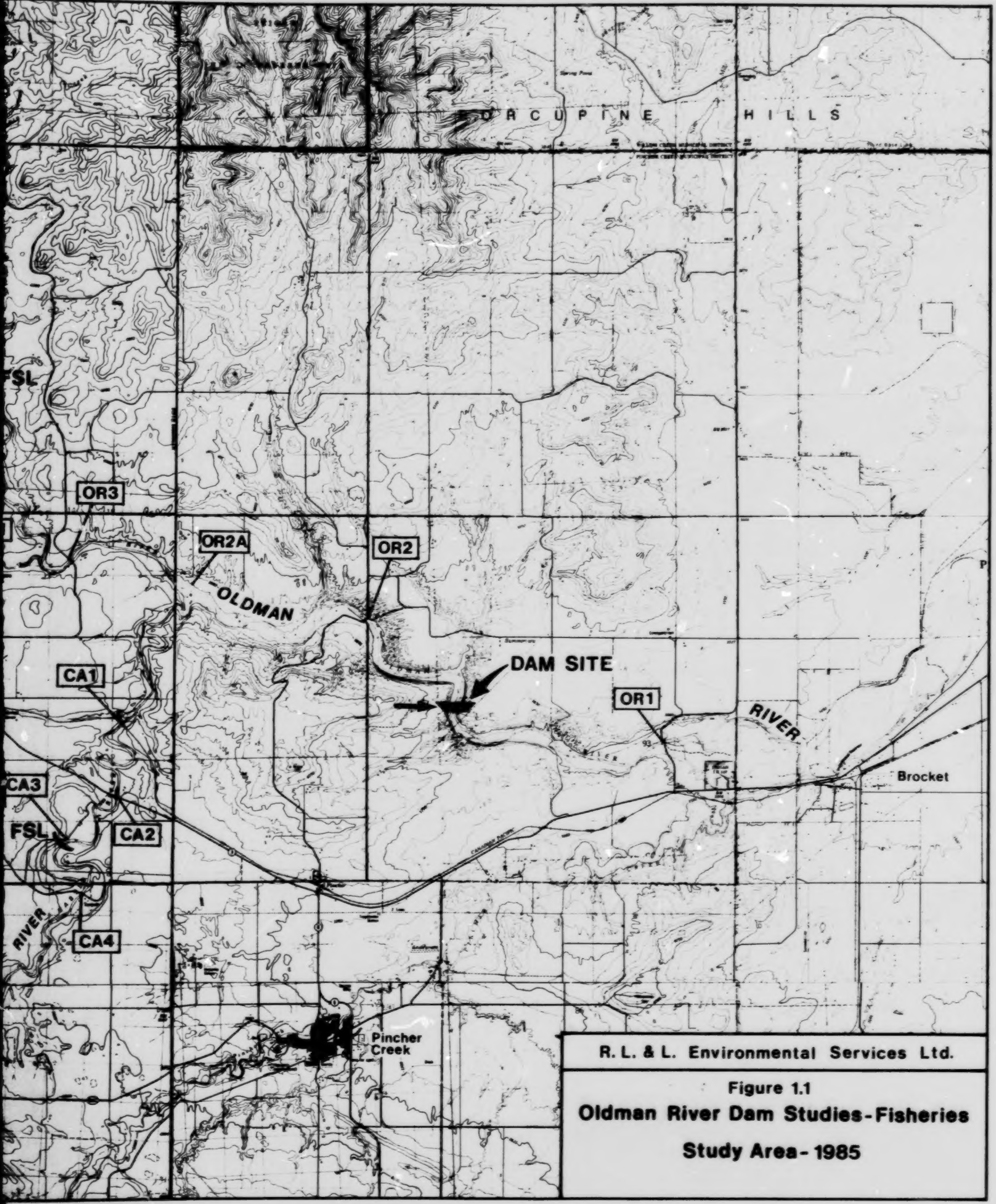

PORCUPINE HILLS
FSL
OR3
OR2A
OR2
OLDMAN
CA1
DAM SITE
OR1
RIVER
Brocket
CA3
FSL
CA2
RIVER
CA4
Pincher Creek

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Figure 1.1

Oldman River Dam Studies-Fisheries

Study Area-1985

Of this total, approximately 22 km were situated within the area of innundation and 14 km were situated in the adjacent upstream reach. The Castle River was investigated from its confluence with the Oldman River to the Canyon Bridge, a distance of approximately 27 km. The study section included approximately 12 km within the potentially flooded area and approximately 15 km of the adjacent upstream reach. Studies on the Crowsnest River extended from Lundbreck Falls downstream to the confluence with the Oldman River, a distance of approximately 16 km. The study section included approximately 9 km within the potentially flooded area and an additional 7 km upstream. Within the combined study area, approximately 79 km of riverine habitat were investigated; this included 36 km above and 43 km below the Full Supply Level (FSL). The type, extent, and distribution of aquatic habitat was determined for both the proposed flooded area and a section above the FSL. The percentage availability of the various habitat types within the overall study area (i.e., including sections above and below FSL) also was determined in order to assess losses in a regional context. It is necessary to point out that the evaluation output is strictly dependent upon the length of unaffected stream included (i.e., an increase or decrease in the portion above the FSL would alter the percentage loss values).

The sport fishery survey extended to selected high-use sites situated beyond the immediate study area boundaries (e.g., Summerview Bridge crossing on Oldman River) in order to evaluate the losses in a regional context.

SECTION 2.0
STUDY OBJECTIVES

The general objectives of the "Reservoir and Tributary Stream Fisheries Assessment" (Terms of Reference dated 26 June 1985) were as follows:

Fish Resources

1. Assess the riverine fisheries losses due to construction of the Oldman River dam.
2. Obtain instream habitat information from the Oldman, Crowsnest, and Castle rivers above FSL that can be used to formulate enhancement scenarios.
3. Provide preliminary mitigation concepts for all three rivers above FSL.

The specific study requirements, as outlined in the Terms of Reference (Appendix A), are condensed below:

1. Collect data on species composition, distribution, and abundance of fish within the study area.
2. Gather data on critical habitats (spawning, rearing, and overwintering) within the proposed innundation area; assess the importance of the loss of these habitats to adjacent reaches upstream of the FSL.
3. If important spawning beds are located, the timing and duration of spawning activity at these sites should be documented and the location mapped.
4. Carry out a creel survey in the summer and fall in the affected area.
5. Provide a preliminary assessment of the fish populations likely to inhabit the reservoir on a seasonal or resident basis.

Aquatic Habitat

1. Obtain data on the physical habitat in the Oldman, Crowsnest, and Castle rivers within the study area.
2. Identify habitat features which presently limit fish populations; data should be in sufficient detail to allow development of habitat enhancement scenarios above FSL.
3. Determine differences in the type and severity of limiting factors above and below FSL.

Mitigation Concepts/Strategies

1. Incorporate all information on critical habitats, migration patterns, etc. into a final evaluation of possible mitigation concepts or strategies that would be practical in enhancing the fisheries in all three rivers above FSL.

SECTION 3.0
STUDY METHODOLOGY

3.1 AQUATIC HABITAT

The assessment of aquatic habitat in the study area entailed a three-phased approach as follows:

1) Systematic characterization of aquatic habitat in the study area into discrete habitat types (Comprehensive Habitat Inventory)
2) Delineation and description of major habitats utilized by sportfish for feeding/holding during summer and fall (Site Specific Habitat Inventory)
3) Delineation and description of major habitats utilized by fall spawning species for spawning (Site Specific Habitat Inventory).

3.1.1 COMPREHENSIVE HABITAT INVENTORY

The comprehensive inventory involved differentiating and mapping the study streams into a range of habitat types (Appendix B). The mapping was conducted in late October during downstream float surveys. The coverage extended to approximately 79 km of riverine habitat. Habitat types were mapped on 1:5000 scale airphotos for the entire Crowsnest River study section (i.e., above and below FSL). These maps were available only for the sections below the FSL on the Oldman and Castle rivers. Mapping on the upper reaches of the latter systems was at the 1:50 000 scale. At this scale it was not practical to precisely determine the contribution of individual habitat types; a percentage composition approach was used (i.e., estimate of relative contribution of various types within a given reach). In addition to determining percentage composition of the various habitat types, the location of select habitat types (e.g., high quality holding areas) was delineated.

A habitat type classification and rating scheme developed by R.L. & L. Environmental Services Ltd. was utilized. This system has been used in Alberta on previous occasions. The Alberta Fish and Wildlife Division provided review input to ensure that the classification system reflected local habitat differences. Additional improvements to the habitat scheme were made prior to the mapping phase (i.e., on the basis of fish distribution/habitat selection data obtained during the mid-August and early October electrofishing surveys).

In the office, the length of individual habitat type units was measured; through summation the contribution of each habitat type (e.g., R1) to a given reach (e.g., section below FSL) was determined. Mean wetted widths (average of 3 measurements per habitat type unit) also were determined to allow calculation of the surface area contribution of the various types. On the upper Oldman River and Castle River the contribution of each habitat type was calculated on a reach basis (i.e., percentage composition between two known points). Average wetted widths for the various habitat types in the upper sections were assumed to be similar to in corresponding types at the upper end of the 1:5000 scale mapped sections. Length and surface area values derived for the various habitat types above the FSL in the Oldman and Castle rivers are considered to be preliminary estimates only.

Maximum and average depths were measured in all high quality holding areas (e.g., R1, P1) and in representative units of the remaining types (e.g., R3, P2). Depths were determined with a hand-held sounding pole during downstream float surveys. The extent and quality of in-stream and bank-related cover features were assessed visually.

Detailed habitat maps (1:5000 scale) delineating individual cover types units in the Crowsnest River and lower (below FSL) portions of the Oldman and Castle rivers are provided under separate cover (see Technical Appendices - Aquatic Habitat Mapping in the Oldman River Dam Study Area, 1985).

3.1.2 SITE SPECIFIC HABITAT INVENTORY

The site specific habitat inventory involved delineation of major feeding/holding and fall spawning habitats above and below the FSL. Identification of feeding/holding areas was based on electrofishing capture results. To the extent possible, capture location and habitat residence were determined for individual or associated groups of sportfish. Fork length measurements were taken for all brown trout and rainbow trout and a sub-sample of mountain whitefish to allow association of distinct age/size classes with specific habitats. In the office analysis phase, individual types were rated as to their suitability for feeding/holding for both the young-of-the-year (y-o-y)/juvenile and adult cohorts. The combined length or surface area contribution of select habitat types (i.e., those assigned a moderate to high quality rating) provides an assessment of the habitat suitability of a given stream zone (above FSL, below FSL, etc.) for feeding/holding. The assessment of overwintering capability was based on the availability of only high quality holding areas (i.e., R1, P1).

Detailed evaluations were undertaken at suspected and confirmed brown trout and mountain whitefish spawning locations. Due to the large study area it was not feasible to conduct a comprehensive egg recovery program. For this reason, an electrofishing survey was carried out during October to delineate the pre-spawning distribution of adult brown trout and mountain whitefish. The distribution and CPUE results provided a means of stratifying redd-survey efforts for brown trout and egg recovery efforts for mountain whitefish. Egg recovery efforts for mountain whitefish were further stratified by concentrating sampling efforts in areas of highest habitat suitability as determined during this study and in a previous study in the area (O'Neil et al. 1982). Brown trout redds were easily recognizable due to the contrast between the natural, algae covered substrate and the cleaner, recently disturbed substrate in the redd. Downstream float surveys and site-specific bank-side surveys provided effective coverage of the Crowsnest River although redds located adjacent to or situated partially under overhanging banks were somewhat more difficult to identify.

Depth, velocity, and substrate information was collected at brown trout and mountain whitefish spawning sites. Depth measurements were recorded at four locations on the perimeter of each brown trout redd (i.e., points delimiting the maximum length and width of the redd) and in the centre of the redd. Velocity measurements (using a Marsh-McBirney electromagnetic current meter) were taken at the each of five depth measurement points; readings were taken at three locations in the water column (i.e., surface, 0.6 of depth and 10 cm above the bottom; nose depth). Substrate size/composition was recorded using a 2 m-length of lead line marked in 10 cm increments (after the method of Bain et al. 1985). The line was positioned down the centre of the long axis of the redd; the dominant substrate size in each 10 cm increment was then determined. Substrate particle sizes were classified according to a modified Wentworth Scale (Platts et al. 1983). The substrate types and sizes (and corresponding code numbers) are given below:

Substrate Type	Size (cm)	Code
Silt	-	1
Sand	-	2
Fine gravel	0.2-0.8	3
Medium gravel	0.8-1.6	4
Coarse gravel	1.6-3.2	5
Very coarse gravel	3.2-6.4	6
Small cobble	6.4-12.8	7
Large cobble	12.8-25.6	8
Small boulder	25.6-51.2	9
Large boulder	51.2+	10
Bedrock	-	11

Additional information obtained at spawning areas included: substrate embeddedness and algal cover, distance of the redd to the nearest bank and nearest redd, association with cover, and habitat type (at site, adjacent). Redd locations were mapped and photographed for future reference.

At suspected mountain whitefish spawning sites, egg collecting was undertaken with kick-nets. A minimum of four (average of eight) kick samples were collected in each area designated as potential spawning habitat. Individual kicks encompassed an area of approximately 1.0 m^2 (0.5 x 2.0 m). At sites where eggs were recovered, water depth, velocity (at surface, 0.6 of depth and 10 cm above the bottom), and pertinent substrate characteristics (as for brown trout redds) were recorded.

3.2 FISH POPULATIONS

3.2.1 FISH CAPTURE

The majority of fish sampling was conducted with a two-man survey crew; additional field assistance, when required, was provided by the creel survey clerk. Fish sampling was accomplished by means of boat electrofishing; a shallow-draft inflatable boat (Zodiac Mark II) was used. The electrofishing system consisted of a Smith-Root MV1A boat electrofisher powered by a 4000-W Honda generator. Electrical current (pulsed DC) was directed into the water through a hand-held anode (positive) which consisted of a 25.4-cm diameter metal ring covered with hardware cloth. The ring was affixed to a circular styrofoam block for floatation and attached with a short length of chain to a 2.0-m insulated wooden pole. The cathode (negative) lead was connected to a 1.15-m x 0.33-m section of aluminum sheeting attached to a similar sized piece of 5.0-cm thick styrofoam. The cathode was allowed to float alongside the boat during sampling. The majority of shocking was conducted with the unit producing 3.0 to 5.0 A.

The electrofishing procedure consisted of drifting downstream through defined sampling sections, generally following the stream thalweg. Sampling was directed towards bank-related or in-stream cover. A crew member positioned on the bow of the boat manipulated the anode pole and netted the fish attracted by the electric field. The other crew member stood at the stern of the boat and controlled the direction of drift; it was often necessary to disembark and guide the boat manually.

During boat electrofishing, only sportfish species were netted. Coarsefish species and those sportfish avoiding the netter were enumerated and recorded as observed at the end of the sample section. Captured fish were transferred immediately to holding tubs. Fish were processed upon completion of a sample section or when the holding capacity of the tubs was reached. Fresh water was added periodically to replenish the dissolved oxygen supply, moderate water temperatures, and reduce stress. Catch data and pertinent habitat information (habitat selection by various species, life-stages, and habitat type, etc.) were recorded on a standard Electrofishing Record form. Electrofisher settings, amperage produced, and sampling effort (seconds and metres shocked) also were recorded. Water temperature (to the nearest 0.5°C) was recorded with a pocket thermometer. Other information recorded included: stream conditions (water level, turbidity, etc.), estimated sampling efficiency, and factors limiting sampling efficiency.

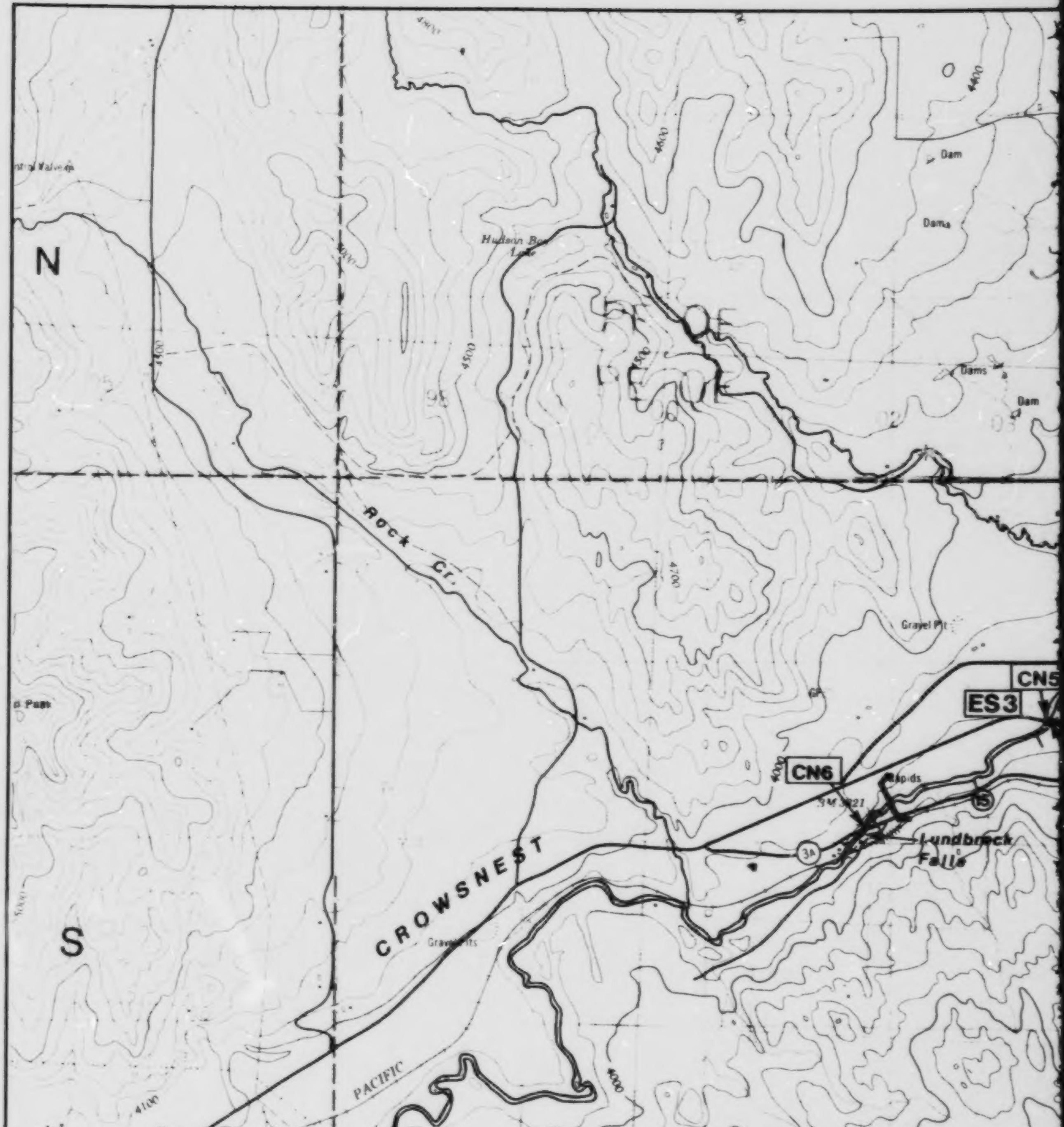
General electrofishing survey sections were established in each of the systems (above and below FSL). Repetitive sampling was conducted in these sections to determine species composition and relative abundance of the various sportfish species and life-stages. The locations of the general electrofishing survey sections (designated with the ES suffix) are shown on Figures 3.1 (Crowsnest River), 3.2 (Oldman River), and 3.3 (Castle River).

3.2.2 UNDERWATER SURVEILLANCE

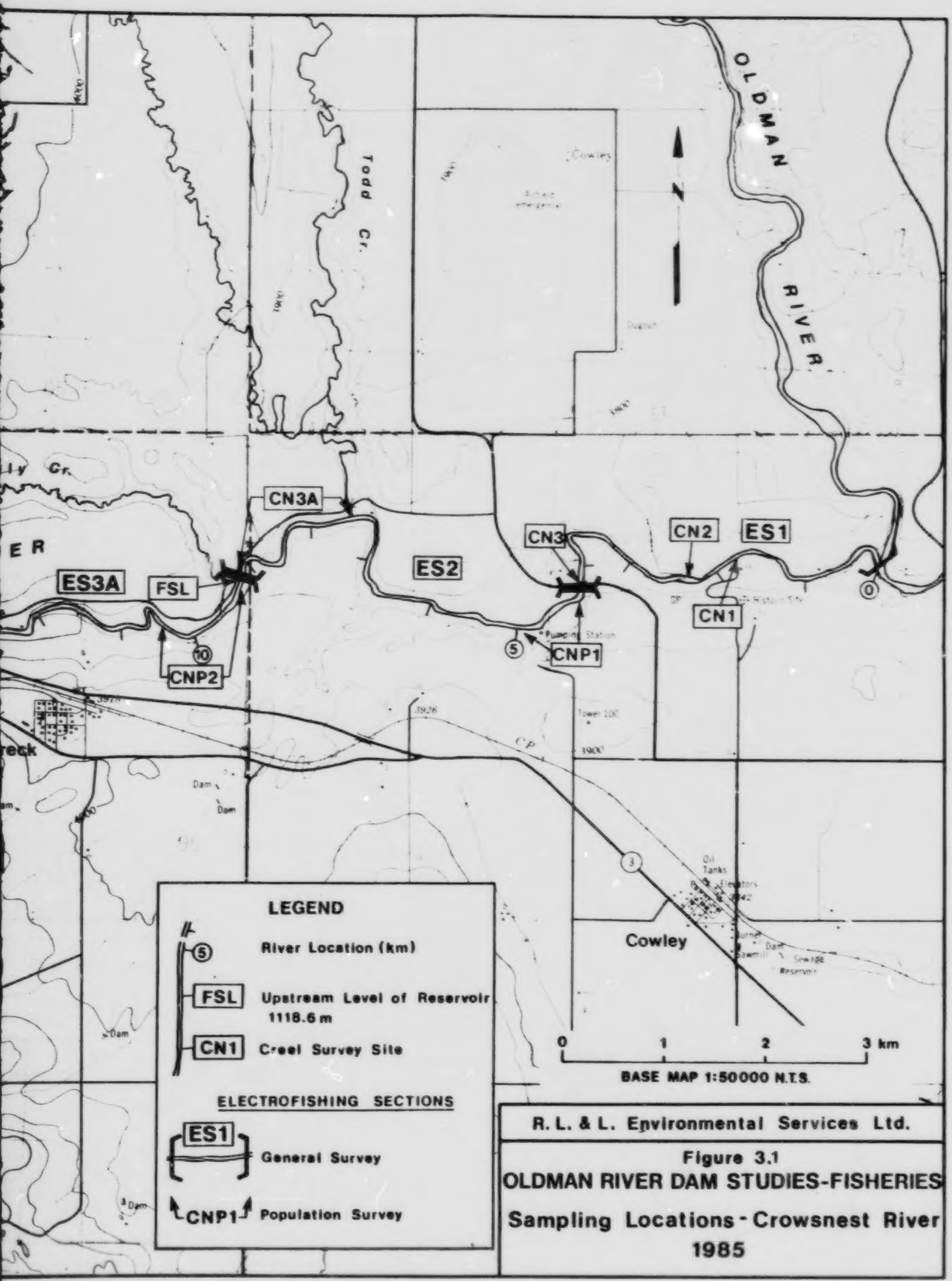
Underwater surveillance (using wetsuit, snorkel, mask) was carried out in the Crowsnest River (population section CNP3) to determine fish distribution patterns at a microhabitat level. Total observation time, length of channel surveyed, visibility, physical parameters, fish observed, and habitat distribution were recorded. This method was utilized in the October survey, but was only partially successful due to increased levels of turbidity resulting from recent rain and snowfall in the headwaters.

3.2.3 FISH TAGGING

Sportfish captured by electrofishing were tagged to provide data on fish movements in the study area. Only specimens in good physical condition at the time of capture were marked; orange Floy FD67 Anchor Tags provided by Alberta Environment were used. Tags were coded with a six digit number and the words "Alta. Env. Reward". The tag was inserted (using a Dennison Mark II applicator gun) into the dorsal musculature immediately below the insertion of the dorsal fin. A summary of tag series numbers and locations used is presented in Appendix C1; tagging data for individual fish is provided in Appendix D.

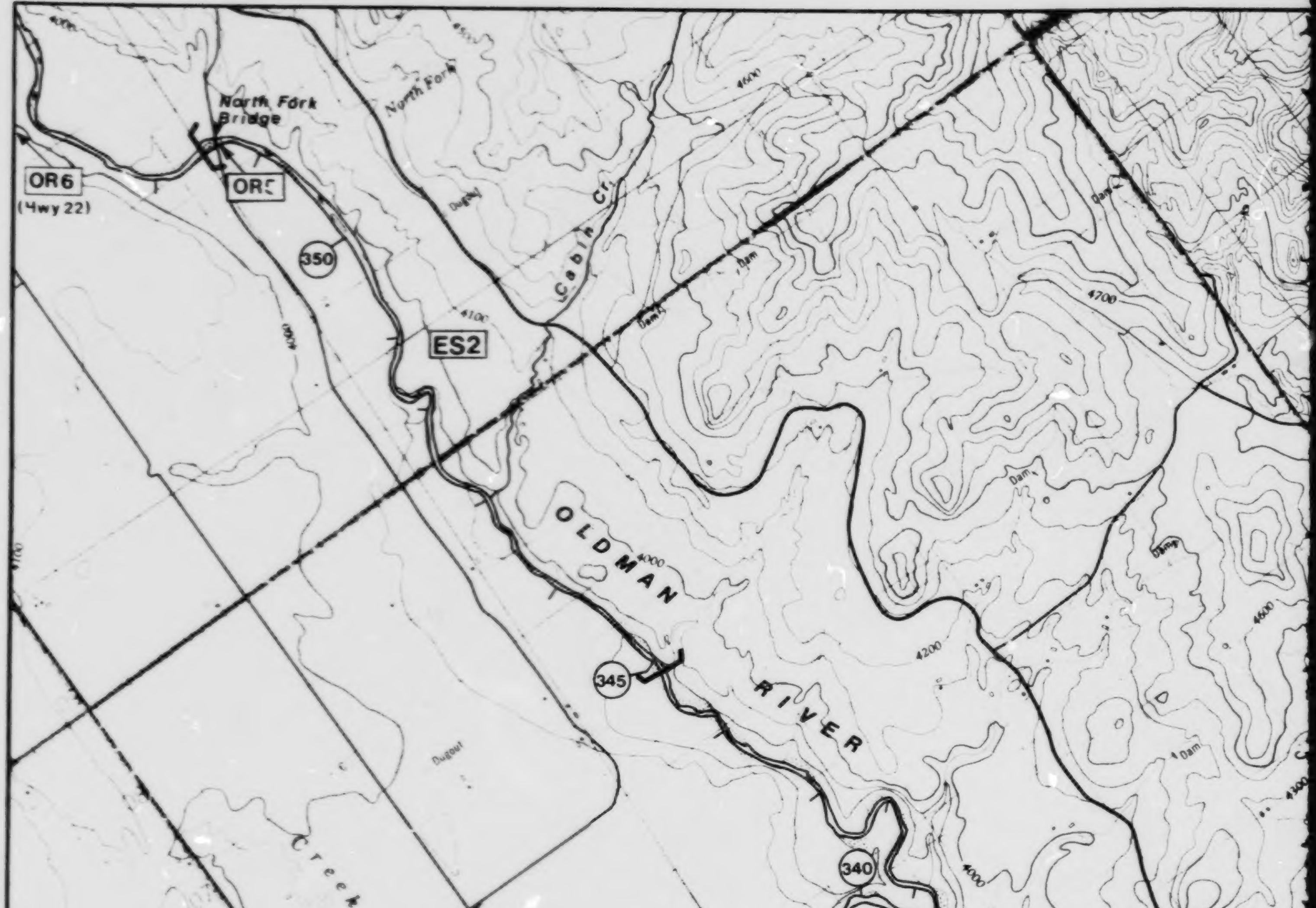


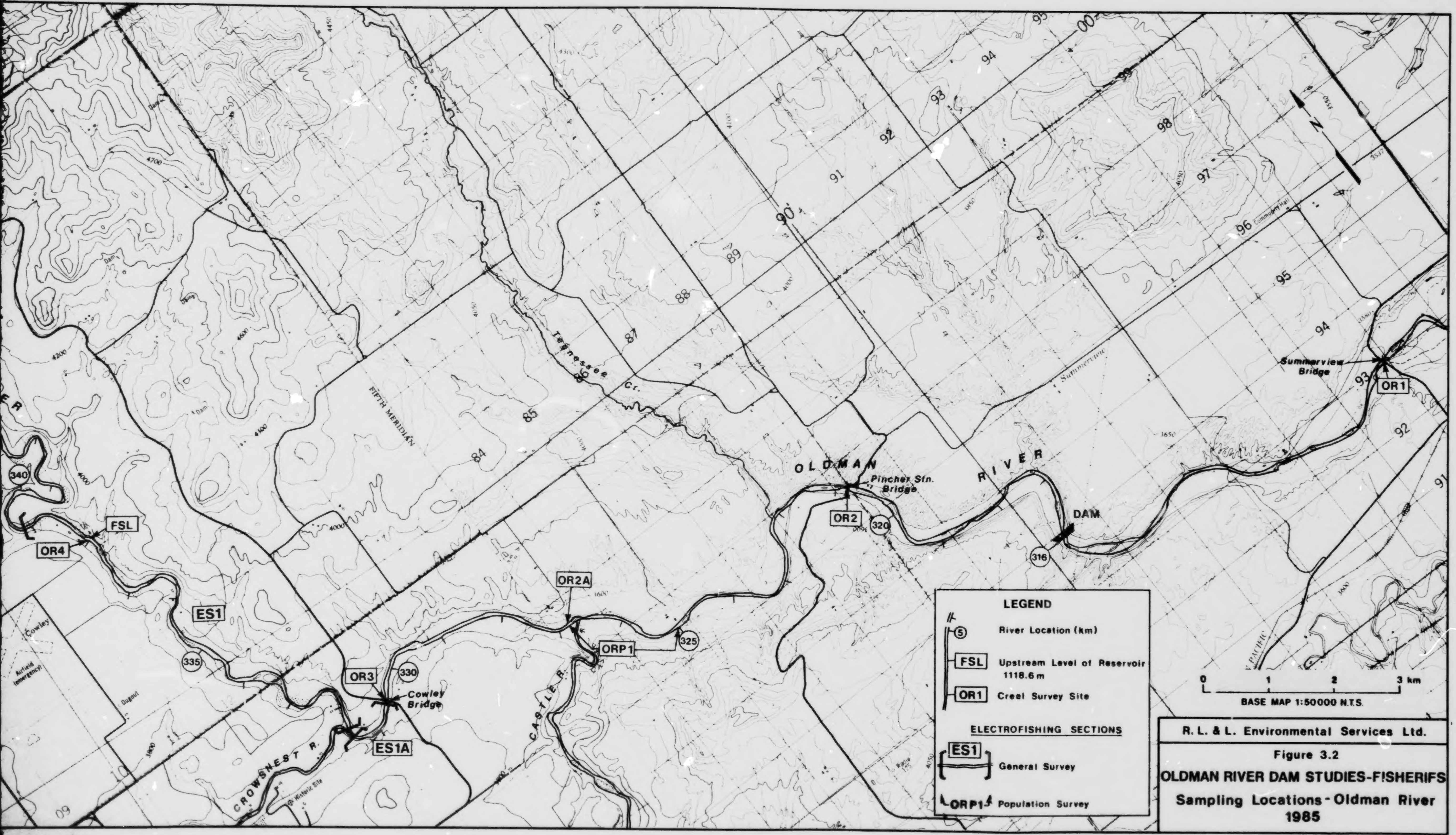
N
S
Hudson Bay Lake
Rock Cr.
CROWSNEST
PACIFIC
CANADIAN
Burmis
Gravel Pits
Gravel Pit
Dam
Dams
Rapids
Lundbreck Falls
Lees Lake
CN5
ES3
CN6
CN7
3A
3
4400
4500
4700
4000
4100


OLDMAN RIVER
Todd Cr.
ly Cr.
ER
Cowley
Airfield emergency
CN3A
CN3
CN2
CN1
ES1
ES2
ES3A
FSL
CNP1
CNP2
0
5
10
Pumping Station
Historic Site
CP
Tower 100
3900
3926
3
Oil Tanks
Elevators
Cowley
Burner
Dam
Sawmill
Sewage Reservoir
reek
Dam
0
1
2
3 km
BASE MAP 1:50000 N.T.S.
LEGEND
5 River Location (km)
FSL Upstream Level of Reservoir 1118.6 m
CN1 Creel Survey Site
ELECTROFISHING SECTIONS
ES1 General Survey
CNP1 Population Survey

R. L. & L. Environmental Services Ltd.

Figure 3.1
OLDMAN RIVER DAM STUDIES-FISHERIES
Sampling Locations - Crowsnest River
1985


North Fork Bridge
OR6
(Hwy 22)
OR5
North Fork
Cabin Cr
350
ES2
OLDMAN RIVER
345
340
FSL
OR4
ES1
335
Cowley
Airfield (emergency)
Dugout
Dugout
Dugout
Dam
Creek
Creek
Creek
CROWS
4000
4100
4200
4300
4600
4700
3900
3800
02
09
10
11
12

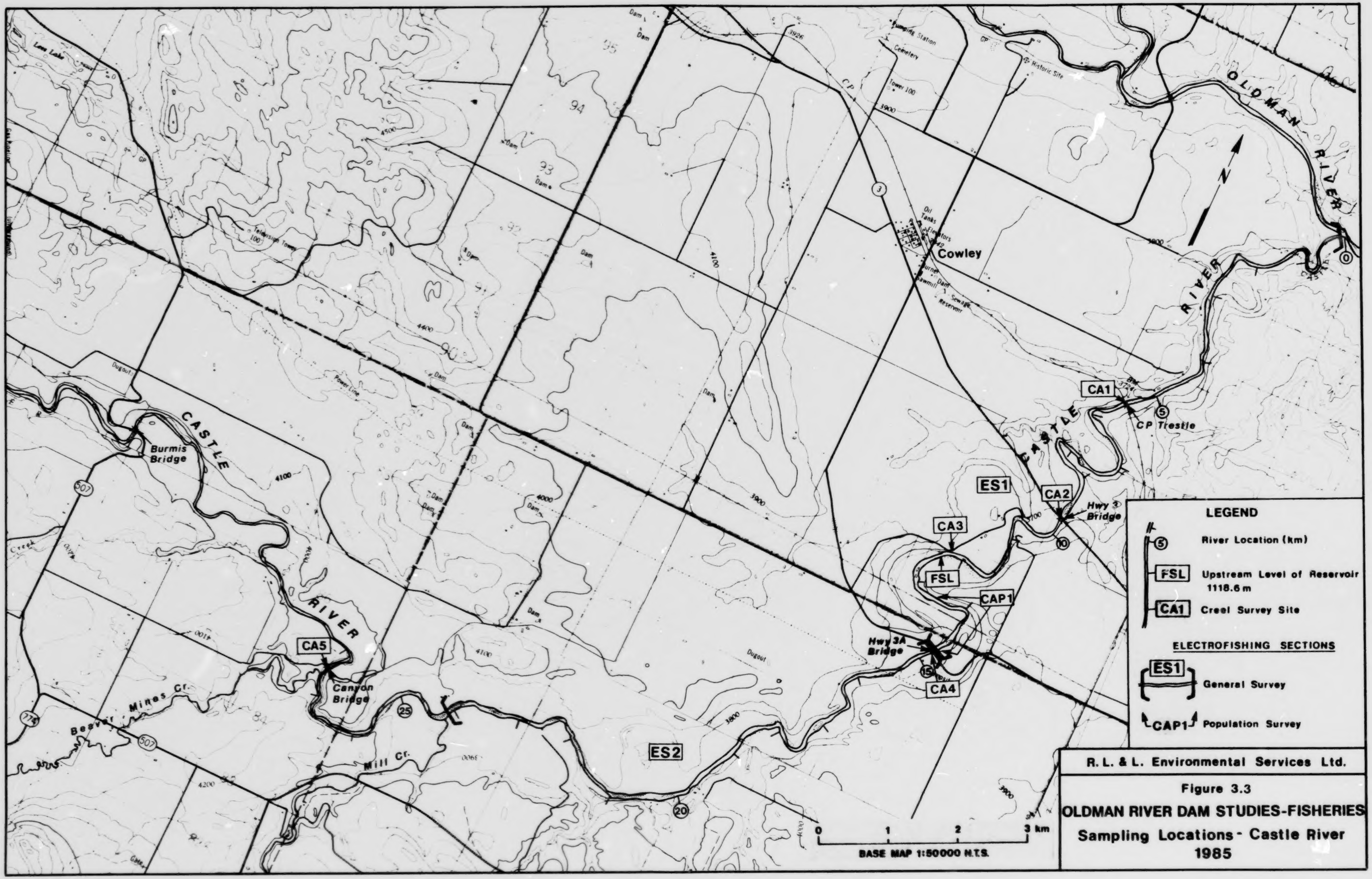

OLDMAN RIVER
Pincher Stn. Bridge
OR2
320
DAM
316
Summerview Bridge
OR1
Summerview
Tennessee Cr.
FIFTH MERIDIAN
CROWSNEST R.
CASTLE R.
Cowley Bridge
OR3
330
ES1A
ES1
335
OR4
FSL
340
OR2A
ORP1
325
Cowley
Airfield (emergency)
Dugout
Historic Site
Community Hall
N
LEGEND
5 River Location (km)
FSL Upstream Level of Reservoir 1118.6 m
OR1 Creel Survey Site
ELECTROFISHING SECTIONS
ES1 General Survey
ORP1 Population Survey
0 1 2 3 km
BASE MAP 1:50000 N.T.S.

R. L. & L. Environmental Services Ltd.

Figure 3.2

OLDMAN RIVER DAM STUDIES-FISHERIES

Sampling Locations - Oldman River 1985


OLDMAN RIVER
CASTLE RIVER
Cowley
Burmis Bridge
Canyon Bridge
Hwy 3A Bridge
Hwy 3 Bridge
CP Trestle
Beaver Mines Cr.
Mill Cr.
Lees Lake
Television Tower
Oil Tanks
Elevators
Sawmill
Sewage Reservoir
Cemetery
Pumping Station
Historic Site
Power Line
Dugout
Dam
CA1
CA2
CA3
CA4
CA5
CAP1
FSL
ES1
ES2
0
5
10
15
20
25
3
507
775
N
0 1 2 3 km
BASE MAP 1:50000 N.T.S.
LEGEND
River Location (km)
Upstream Level of Reservoir 1118.6 m
Creel Survey Site
ELECTROFISHING SECTIONS
General Survey
Population Survey

R. L. & L. Environmental Services Ltd.

Figure 3.3

OLDMAN RIVER DAM STUDIES-FISHERIES

Sampling Locations - Castle River

1985

3.2.4 LIFE HISTORY DATA

Pertinent life history data were collected from a representative sample of the various sportfish species. Fork lengths were recorded to the nearest millimetre; weights were determined on either a Chatillon Model 1038B spring scale (0 to 1000 g) or a Hanson Dietary Scale (0 to 500 g). Sex and maturity were determined either by dissection, external examination (i.e., for brown trout), or, during spawning seasons, release of sexual products. Scale samples were taken from a representative number of the sportfish species; otoliths were removed from capture mortalities. Scales and otoliths were placed in coin envelopes and stored dry. Scale aging was accomplished by mounting the scales between two glass microscope slides and subsequent projection on a 3 M Model SRC 816 microfiche reader. Otoliths were aged under a binocular dissecting microscope; large otoliths were first polished with a carborundum stone.

Life history information was recorded on coded fish data sheets and entered into computer files. The data was sorted and analyzed using FISHPAK (an in-house computer software package) on the University of Alberta Computer (Amdahl 470 V17 under MTS). The results of the life history data analysis are presented in the individual species discussions; data print-outs are provided in Appendix D.

3.2.5 HABITAT UTILIZATION

Habitats utilized by sportfish species and life-stages were recorded during electrofishing runs. Information noted included: habitat type (e.g., RUN, RIFFLE, RAPID, POOL), association with instream (e.g. boulders) or bankside (e.g., undercut banks, bank fall debris) cover, flow characteristics (i.e., velocity, turbulence), estimated depth, and substrate types. This information was noted by both crew members and recorded at each stop.

3.2.6 POPULATION ESTIMATION PROCEDURES

In addition to the general survey electrofishing sections (e.g., ES1), population estimate sections were established in each of the three study streams. Three sections (CNP1, CNP2, and CNP3) were established on the Crowsnest River (Figure 3.1) and one on each of the Oldman (ORP1; Figure 3.2) and Castle (CAP1; Figure 3.3) rivers. The sections were approximately one kilometre long. The location and length of the sections was largely determined by access although an attempt was made to include a representative range of habitats. Fish capture was accomplished by boat electrofishing (i.e., similar techniques to those described previously for the general survey sections). Sportfish were either tagged with Floy anchor tags or marked by clipping or punching the adipose fin (for salmonids). In most sections, several marking runs were conducted over a one or two day period. The section was then left undisturbed for approximately 48 hours to allow the marked fish to randomly redistribute throughout the section prior to the recapture run.

Population estimates were derived using the procedures outlined in Ricker (1975). A more detailed description of the results from the population surveys and sources of error/bias in the methods employed are discussed in Appendix E.

3.3 RESOURCE USE

A creel survey was conducted at major access points on the Crowsnest, Oldman, and Castle rivers (Figures 3.1-3.3). The survey was stratified in order to obtain estimates of angler use during specified time periods. Since the Crowsnest River supports a renowned sport fishery, sampling effort was weighted toward this system.

The creel survey was designed to provide comparative data from the affected area (i.e., below the proposed FSL) and the zone of possible influence above FSL. In addition, the Summerview Bridge site below the damsite on the Oldman River was added to the study due to its known importance. The intent of the study was to determine the extent and quality of the present sport fishery both on affected and adjacent unaffected reaches. The methodology employed and the study rationale are briefly discussed below; a more detailed description is provided in Appendix F1.

3.3.1 STUDY SCHEDULING AND LOGISTICS

The creel survey extended from 1 August to 31 October 1985. The study was designed to provide maximum coverage of weekends and holidays, while still sampling sufficient weekdays to provide an adequate data base for extrapolation to uncensused periods (Appendix F1). One census clerk, a resident in the area, was employed in the present study; he conducted census operations by vehicle and on foot.

3.3.2 STUDY DESIGN

The present study utilized a stratified random sampling technique (Groen 1969; Paxton 1975; Malvestuto et al. 1978). The scientific literature and the experiences of the study team indicated that study design must be modified to accomodate the geographical features of the study area and the manpower and budgetary limits. The present study design was selected, after reviewing the results of a 15 day preliminary survey (i.e., to determine access and angling use patterns) in early August . It was designed to best accomodate the numerous variables and the manpower availability, while still meeting the basic requirements of the stratified random sample method.

The present study area contained three major river systems (i.e., the Crowsnest River, Oldman River, and Castle River) each with numerous public and private access points. The selection of the access points to be surveyed was made on the basis of use patterns recorded during the preliminary study.

To account for the higher expected angler use of the Crowsnest River, this sytem was stratified into two study sections. The lower Crowsnest River (LCN) extended from the mouth upstream to the proposed reservoir FSL (Figure 3.1). The upper Crowsnest River (UCN) extended from the FSL upstream to the Highway 507 crossing near Burmis. Seven major access points were identified on the Crowsnest River; three of the sites were situated in the lower Crowsnest River (LCN, below the proposed FSL) and four in the upper Crowsnest River (UCN, above the proposed FSL). Sites in the LCN study section were designated CN1, CN2, and CN3; within the UCN study section the sites were as follows: CN4, CN5, CN6, and CN7.

On the Oldman River, four major access points were surveyed (Figure 3.2). The furthest downstream site (OR1) is situated 6.4 km below the proposed damsite. The remaining sites (OR2, OR2A, and OR3) lie within the proposed reservoir FSL. Initially, several access sites on the Oldman River, upstream of the proposed FSL (i.e., OR4, OR5, and OR6; Figure 3.2), were included in the creel survey program. However, the extensive travel time required to reach these sites and their low recorded use resulted in their elimination from the survey.

Four major access points were identified on the Castle River (Figure 3.3). Two of these (CA1 and CA2) were situated within the proposed reservoir FSL with the remaining two (CA4 and CA5) located upstream from the FSL. A additional access site (CA3) below the FSL was identified during the preliminary survey; however, access to this site was blocked by an installation of irrigation pipes across the road in late August.

3.3.3 DAILY SAMPLE PERIODS

The selection of daily sample periods was dictated by a) the amount of available daylight (ranging from approximately 16 hours in August to 11 hours in late October), b) the time required for travel to and from the access sites, and c) the time required to conduct angler interviews within each study section. To best account for these conditions, each survey day was divided into three sample periods: MOR (morning), AFT (afternoon), and EVE (evening) periods. The duration of the sample periods varied depending on the amount of available daylight in each sampled month. A detailed description of sample periods is presented in Appendix F1.

3.3.4 SAMPLING SCHEDULE

The study period (1 August to 31 October 1985) contained 92 days, of which 63 were weekdays (i.e., Monday to Friday), and 29 were weekend/holiday days. For the purposes of this study the day types were designated as "Weekday" (WD) or "Weekend/Holiday" (WE). Due to traditionally higher angler use of WE periods, 22 (76%) of these 29 available day types were sampled. Statutory and civic holidays were included in this day type. Of the 63 weekdays available for sampling, 27 (43%) were sampled. The total sampling effort for both day types was 49 days (53%) of the 92 days available between 1 August and 31 October. The selection process used to determine the sampling schedule is detailed in Appendix F1.

In addition to the above, access surveys were conducted at Site OR1 on the Oldman River on the 2nd and 3rd November 1985. These surveys were conducted to monitor the mountain whitefish fishery at this site; results from this survey are treated separately from the regular creel survey results.

3.3.5 ANGLER COUNTS AND INTERVIEWS

Angler enumeration and interviews were conducted by the survey clerk. The clerk drove to each of the selected access sites within the study section and a) conducted an instantaneous count either upon his arrival or departure from the site and b) conducted interviews of anglers at the site. The timing of the instantaneous count depended on whether or not the anglers could be easily observed from the access site. If anglers were within view the count was conducted upon arrival; if the clerk was required to walk up or downstream to locate anglers the count was conducted upon departure. If anglers could not be located, a count was made of the vehicles at the access points and subsequently adjusted through application of a mean anglers/vehicle value. Whenever possible, the party size and location of vehicles was determined from interviewed anglers to obtain a mean anglers/vehicle value and provide a check on count accuracy. In a study section, each access site was visited once during the designated daily time period. A further description of the interview methodology is presented in Appendix F1.

3.4 DATA EXTRAPOLATION

3.4.1 COMPUTER ANALYSIS

Data recorded on field forms were entered into storage using a Columbia 1600 VP microcomputer. The data were then sorted, grouped, and analyzed using the Knowledgeman^{TM} statistical software package (Micro Data Base Systems Inc.).

3.4.2 ANGLER EFFORT, NUMBERS, AND HARVEST ESTIMATION

The estimates of total angler effort were computed by extrapolation of the expanded mean angler effort values in each strata and in each study section. The rationale and methods used for calculating total angler effort, total anglers, and fish harvest are detailed in Appendix F1. Originally, it was hoped to obtain data with sufficient precision and accuracy to allow the computation of confidence intervals for the estimates. Numerous factors combined to produce strata with insufficient sample size for calculation of confidence intervals; these included: 1) insufficient sampling effort in relation to the size of the study area and the number of access points, and 2) the tendency of anglers to walk substantial distances from the access point (thereby increasing the difficulty in obtaining count and interview data). As a result, it was often necessary to group various strata to obtain estimates of angler effort, number of anglers and harvest. This procedure introduced potential (and non-quantifiable) biases into the results; the source and possible affects of these biases are identified whenever possible. The values presented should be considered only as rough estimates, and as such should be used primarily to make comparisons of relative use between study sections, and between sites within study sections.

SECTION 4.0
GENERAL DESCRIPTION OF THE STUDY AREA

4.1 STREAM LENGTH AND CHANNEL CHARACTERISTICS

A total of 79.1 km of river channel were surveyed in the Oldman River Dam Study Area during the fisheries and habitat components of this study; they were distributed as follows: 16.1 km of the mainstem Crowsnest River; 35.5 km of the mainstem Oldman River; and 27.5 km of the mainstem Castle River.

The Crowsnest River study section extended from the confluence with the Oldman River (km 0.0) upstream to Lundbreck Falls (km 16.1). In the upper portion of the study section, the channel is confined between steep canyon walls and is characterized by high gradient habitat features (i.e., bedrock ledges, rapids, boulder-gardens, chutes, and plunge pools). Wetted channel width (at fall discharge) in this section generally ranged from 19.0 m to 27.0 m. The middle and lower reaches exhibit lower gradient habitat features; habitat consisted mainly of a series of Riffle-Run-Pool complexes. The channel form is generally singular, straight and occasionally confined by high eroding escarpments on outside meanders; banks along straight channel sections are generally steep, low, stable, well vegetated, and occasionally undercut. Wetted channel widths (at fall discharge) in the lower section of the Crowsnest River generally ranged from 17.0 m to 31.0 m.

The Oldman River study section (35.5 km in length) extends from the proposed damsite at km 316.0, upstream to the North Fork Bridge crossing at km 351.5. In the upper portion the channel is relatively narrow (wetted width ranging from 15.0 m to 35.0 m), straight, singular, and frequently confined. High gradient habitat types predominate, consisting principally of numerous chutes, rapids, and boulder-gardens interspersed with sections of fast, shallow Run and occasional Pool habitats. The channel widens and gradient decreases with downstream distance, with a corresponding increase in channel braiding, and Run/Riffle and Pool habitats. In the section of the Oldman River near the damsite, wetted channel width generally ranged from 26.0 m to 45.0 m.

The Castle River study section (27.5 km in length) extends from the mouth (km 0.0) upstream to the Canyon Bridge crossing (km 27.5). In the uppermost 3.5 km the singular channel flows through a narrow canyon and is characterized by high gradient with numerous bedrock ledges, chutes, plunge pools, and rapids. Downstream from this canyonous section, the river valley widens considerably; channel gradient is still relatively high, however, resulting in numerous high velocity Run/Rapid sections, boulder-gardens, and occasional ledges and chutes at bedrock outcrops. Wetted width in this area generally ranged from 20.0 to 35.0 m. With increased downstream distance, gradient decreases slightly (although localized sections of high gradient are common), and channel width increases substantially with a corresponding increase in channel braiding. In the lower portion of the Castle River, the channel flows through a wide steep-sided valley; an extensive flood plain has developed where the active channel is not confined by the valley walls. Wetted widths in the lower section generally ranged from 20.0 to 36.0 m.

4.2 FLOW REGIME

Hydrographs for the three river systems in the study area are presented in Figures 4.1 to 4.3. In all three systems, peak discharges during the present study period were recorded on 13 September, with the lowest discharges recorded on 8 August.

Crowsnest River flows remained relatively stable over the study period (Figure 4.1). The presence of Crowsnest Lake in the headwaters and the absence of large tributaries, likely contribute to the stable flow regime observed in this system. A comparison of historic and 1985 mean monthly streamflows in the Crowsnest River indicates that flows in the May to August 1985 period were considerably lower than average. Flows in September were slightly higher; October flows were considerably higher (Table 4.1). The 1985 discharges reflect near-drought conditions over the summer period and an unusually wet, cool fall period.

The upper Oldman River (near Waldron's Corner) exhibited more stable flows in 1985 than were observed in the lower Oldman River section near Brocket (Figure 4.2). Although the discharge pattern was similar at the two sites, the degree of fluctuation was much greater in the lower Oldman River, likely due to input from the Castle River. A comparison of 1985 mean monthly flows in the Oldman River with historical values reveals a pattern of lower 1985 spring and summer flows and higher fall discharges similar to that discussed previously for the Crowsnest River (Table 4.1). The degree of difference, however, was much greater on the Oldman River as illustrated by the more than six-fold increase in flows (i.e., 5.8 to 38.0 cms) that occurred in the upper Oldman River (near Waldron's Corner; WSC Stn. 05AA023) from the 11 to 13 September 1985.

Figure 4.1 Crowsnest River hydrograph, 1 August to 28 October 1985. Preliminary data from Water Survey of Canada Station 05AA008 at Frank.

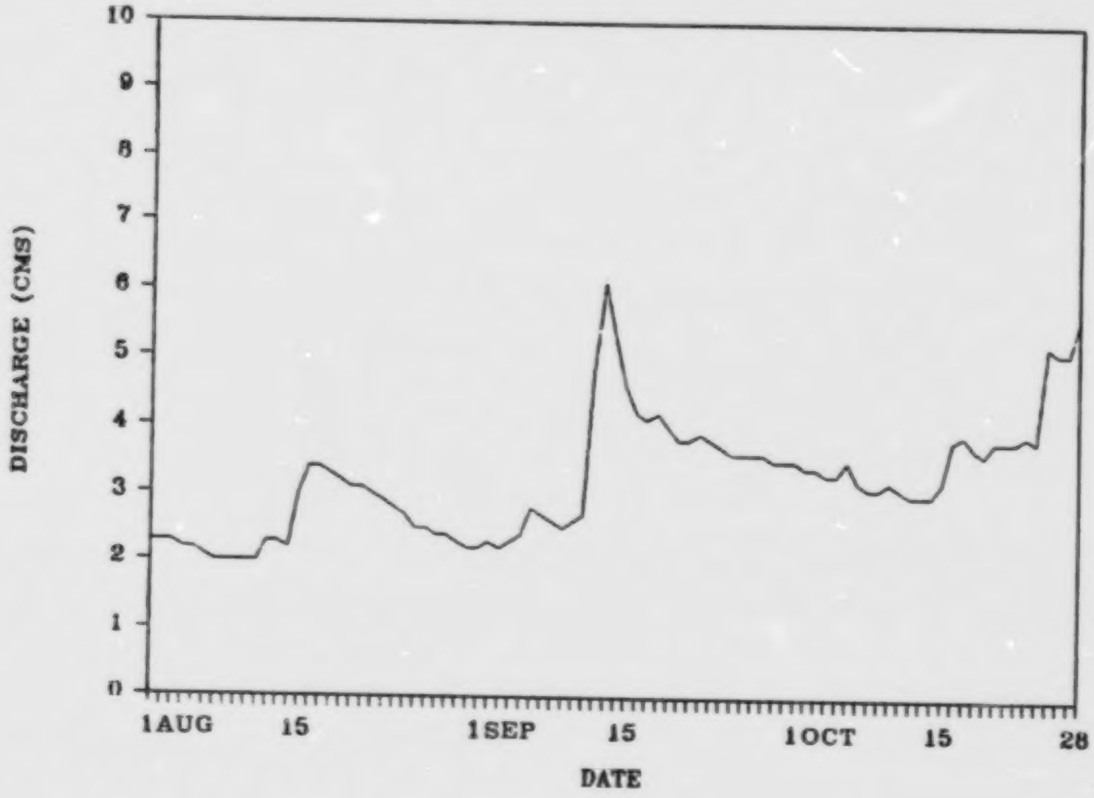


Figure 4.2 Oldman River hydrograph, 1 August to 28 October 1985. Preliminary data from Water Survey of Canada Stations 05AA023 (near Waldron's Corner) and 05AA024 (near Brocket).

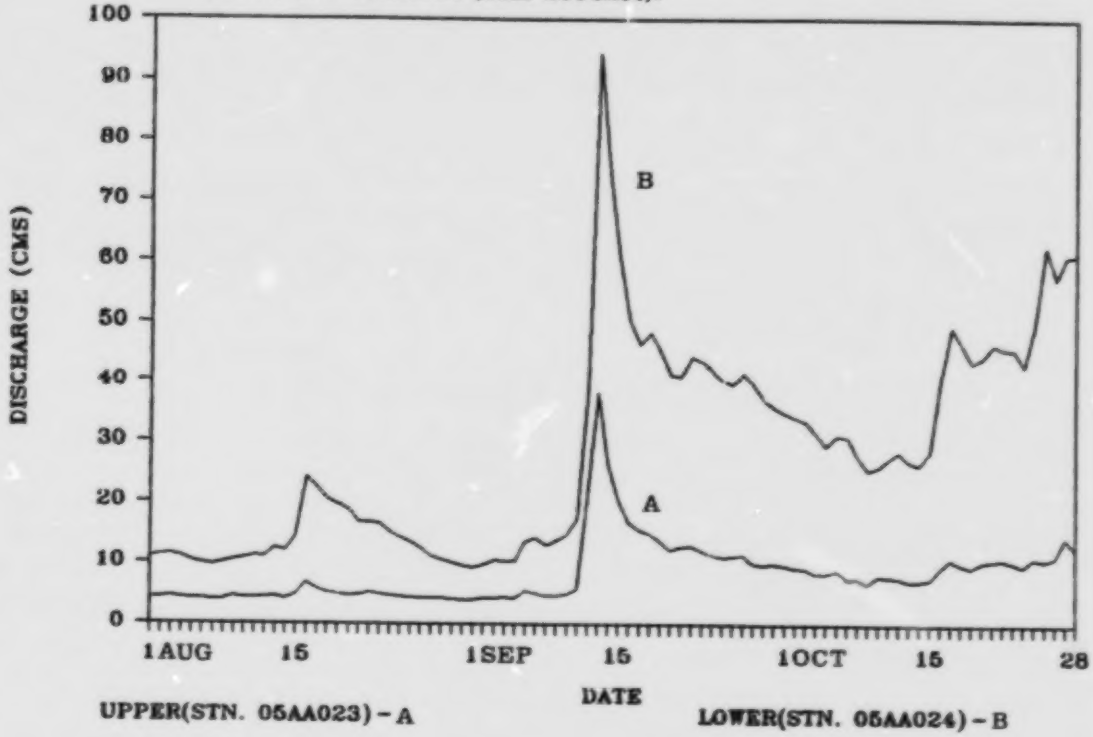


Figure 4.3 Castle River hydrograph, 1 August to 28 October 1985. Preliminary data from Water Survey of Canada Station 05AA022 near Beavermines.

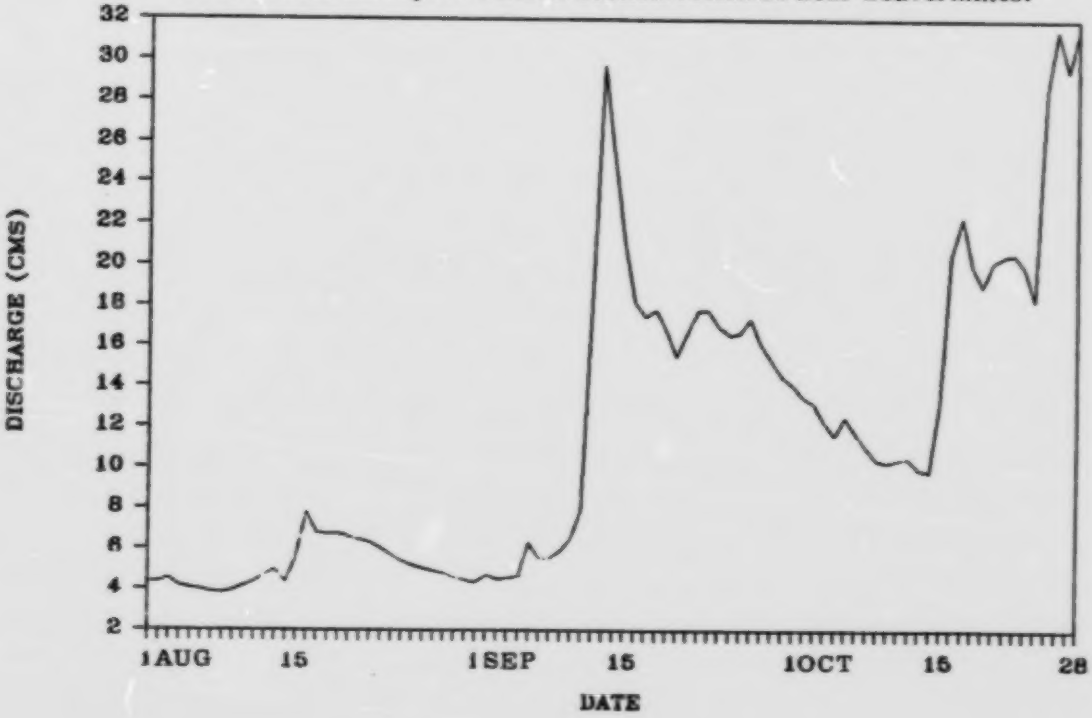


Table 4.1 Comparison of historic and 1985 mean monthly streamflows in the Oldman River Dam Study Area.

Month	Crowsnest R. (at Frank)[a]			Oldman R. (near Waldron's Corner)[b]			Castle R. (near Beaver Mines)[c]		
	Historic Mean	1985 Mean	% Historic Mean	Historic Mean	1985 Mean	% Historic Mean	Historic Mean	1985 Mean	% Historic Mean
May	15.7	8.7	55.4	40.8	23.0	56.4	59.2	48.3	81.6
June	16.1	9.2	57.1	52.3	23.5	44.9	64.0	30.6	47.8
July	7.8	4.3	55.1	21.1	6.1	28.9	21.2	7.9	37.3
Aug.	4.0	2.5	62.5	9.0	4.6	51.1	6.8	5.1	75.0
Sep.	3.0	3.5	116.7	6.4	11.5	179.7	5.4	13.6	251.9
Oct.	2.6	3.7	142.3	5.4	17.0	314.8	6.3	9.4	149.2

[a] WSC Station No. 05AA008 (1910-1984 period of record).

[b] WSC Station No. 05AA023 (1949-1984 period of record).

[c] WSC Station No. 05AA022 (1945-1984 period of record).

Note: 1985 values based on preliminary WSC data.

This relatively unstable flow regime is likely the result of the headwaters being situated on the eastern slopes of the Rocky Mountains.

The headwaters of the Castle River are also located on the eastern slopes; flows in this system also are subject to rapid fluctuations (Figure 4.3). Discharges in the Castle River rose from 7.94 to 29.7 cms over the 11 to 13 September 1985 period. Mean monthly flows in the Castle River in the open-water period of 1985 exhibited similar patterns to those discussed for the Crowsnest and Oldman rivers when compared with historical values.

4.3 TEMPERATURE REGIME

A summary of water temperatures recorded in the present study for each of the Crowsnest, Oldman, and Castle rivers is presented in Appendix G. Highest water temperatures in all systems were recorded in August. The recorded maximum in the Crowsnest River was 18.5°C; maximum in the upper Oldman and Castle rivers was 16.0°C. Water temperatures in the Crowsnest and Oldman rivers decreased gradually over the August and September periods. In early October, cold weather and heavy snowfalls reduced water temperatures to near freezing. Subsequent milder weather returned water temperatures to levels recorded prior to the cold spell. From this point temperatures exhibited a gradual decline over the remaining field period.

SECTION 5.0
FISH SPECIES COMPOSITION AND STATUS

A total of 31 species of fish have been recorded in the Oldman River drainage system (Radford 1975). During the present study, 13 species were encountered in the Oldman River Dam Study Area (Table 5.1). Of these, six are sportfish species, including rainbow trout, brown trout, cutthroat trout, bull trout, and mountain whitefish.

A total of 4151 sportfish were recorded during electrofishing surveys in the Oldman River Dam Study Area (Table 5.2). The dominant fish species was mountain whitefish (locally referred to as "grayling") which made up over 82% of the combined sample. Rainbow trout were the second most abundant sportfish, contributing approximately 15% to the combined catch. An examination of catch/unit effort (CPUE) data for each of the river systems indicates similar species trends in relative abundance among the different study rivers. A subjective assessment of sportfish status in the study area, based on numerical abundance and CPUE data is presented in Table 5.3.

Table 5.1 Fish species encountered in the Oldman River Dam Study Area, August to October 1985.

Species	Code	Scientific Name
Sportfish		
Rainbow trout	(RT)	**Salmo gairdneri** Richardson
Brown trout	(BNT)	**Salmo trutta** (Linnaeus)
Cutthroat trout	(CT)	**Salmo clarki** Richardson
Bull trout	(DV)	**Salvelinus confluentus** Suckley
Mountain whitefish	(MW)	**Prosopium williamsoni** (Girard)
Burbot	(LING)	**Lota lota** (Linnaeus)
Coarse fish		
Longnose sucker	(LNS)	**Catostomus catostomus** (Forster)
White sucker	(WS)	**Catostomus commersoni** (Lacepede)
Mountain sucker	(MS)	**Catostomus platyrhynchus** (Cope)
Forage fish		
Lake chub	(LKC)	**Couesius plumbeus** (Agassiz)
Longnose dace	(LND)	**Rhinichthys cataractae** (Valenciennes)
Trout-perch	(TP)	**Percopsis omiscomaycus** (Walbaum)
Spoonhead sculpin	(SHS)	**Cottus ricei** (Nelson)
TOTAL NUMBER OF SPECIES - 13		

Table 5.2 Numbers and percentage composition of sportfish captured in the Oldman River Dam Study Area, August to October 1985.

Species	Crowsnest River		Oldman River		Castle River		Combined	
	No.	%	No.	%	No.	%	No.	%
Rainbow trout	404	11.4	158	43.5	57	24.6	619	14.9
Brown trout	83	2.3	3	1.0	0	0.0	86	2.1
Cutthroat trout	1	< 1.0	0	0.0	0	0.0	1	< 1.0
Bull trout	3	< 1.0	2	< 1.0	11	4.7	16	< 1.0
Mountain whitefish	3065[a]	86.2	200	55.1	164	70.7	3429	82.6
Total	3556	100.0	363	100.0	232	100.0	4151	100.0

[a] Adjusted value (see Appendix E).

Table 5.3 Relative status of sportfish in the Oldman River Dam Study Area based on results of boat electrofishing and creel surveys, August to October 1985.

Species	Code	Crowsnest R.	Oldman R.	Castle R.
Rainbow trout	RT	Abundant	Com.-Abund.	Common
Brown trout	BNT	Common	Rare	Absent
Cutthroat trout	CT	Rare	Absent	Rare
Bull trout	DV	Rare	Rare	Common
Mountain whitefish	MW	Abundant	Com.-Abund.	Common
Burbot	LING	Rare	Rare	Rare

SECTION 6.0
HABITAT DESCRIPTION AND EVALUATION

6.1 CROWSNEST RIVER

Habitat evaluation and mapping was undertaken on the Crowsnest River during the period 23-24 October 1985. Streamflows at this time were approximately 3.8 $m^3 \cdot s^{-1}$; the survey was completed before the discharge increased significantly in late October (Figure 4.1). However, streamflows were considerably higher than normal for this time of year (Table 4.1). For this reason stream depths measured in 1985 in the various habitat types were likely greater than those generally occurring in late fall.

Habitat mapping, at the 1:5000 scale, was conducted in the section of the Crowsnest River from the Oldman River confluence to Lundbreck Falls (Figure 3.1), a center-line distance of approximately 16.1 km. Within this reach a total 16 285 m (16.3 km) of habitat was delineated and mapped. The difference between centre-line and habitat distance is largely due to the presence of discrete habitats on alternate sides of mid-channel islands or deposition bars (i.e., resulting in double accounting). The total study section (i.e., 16.3 km) encompassed a wetted surface area of 368 810 m^2 (36.9 hectares). The average gradient within the section km 0-12.5 (the upstream extent of 1:5000 contour mapping) is approximately 2.8 m/km. An average gradient of 8.4 m/km was estimated for the upper portion (i.e., km 12.5-km 16.0). A total of 223 major habitat units (i.e., discrete habitats) were delineated in the study section from the Oldman River confluence to Lundbreck Falls. The extent and distribution of these units is illustrated on 1:5000 maps (under separate cover). Descriptive and rating criteria used to characterize the various habitat types are provided in Appendix B1.

Of the total stream length (centre line distance) below Lundbreck Falls (16.1 km), 9.1 km are situated below the reservoir Full Supply Level (FSL). The remaining 7.0 km are located upstream of the FSL (1118.6 m elevation). With respect to habitat type distance (i.e., sum of individual habitat units) the channel lengths above and below FSL are 7.1 km (43%) and 9.2 km (57%) respectively. In terms of habitat surface area, the distribution above and below FSL are 15.0 ha (41%) and 21.9 ha (59%) respectively.

The average gradient in the section below the FSL is approximately 2.9 m/km; above the FSL (km 9.1) to the upstream limit of detailed mapping (km 12.5) the average gradient is 2.8 m/km. From km 12.5 upstream to Lundbreck Falls the average gradient is considerably steeper (particularly in the canyon below Lundbreck Falls Recreation Area) the average gradient is estimated to be in the order of 8.4 m/km.

Of the 223 habitat units delineated in the overall study section, 118 are situated above the FSL. The remaining 105 units are situated below the 1118.6 m elevation. As a rough measure of habitat diversity in the reaches above and below the FSL the number of major habitat units per kilometer was determined. The values derived are as follows: above FSL (16.9 units/km), below FSL (11.5 units/km).

The 223 habitat units are comprised of 15 discrete habitat types, including five Riffle/Rapid categories, five Run categories, three Pool categories, and two Feature categories (chute, ledge). Physical characteristics of individual habitat units are provided in Appendix B2. Tables 6.1 and 6.2 indicates the numbers and average dimensions of the various habitat types below and above the FSL; the data for the two sections (i.e., above and below FSL) is compared in Table 6.3. Minor pools (P3) were not enumerated due to their widespread distribution and limited importance relative to other pool types. Length and area values for high quality pool habitat (P1) were included in the summation of high quality run (R1) habitat due to considerable intergrading between the two types that prevented individual map delineation. Only moderate quality pools (P2) were enumerated; the length and area contribution of these types were considered to be negligible in relation to the surrounding habitat units.

6.2 OLDMAN RIVER

Habitat evaluation and mapping was conducted on the Oldman River on 21 October (below FSL) and 28 October (above FSL). Figure 4.2 illustrates the flow regime during the survey period; the discharge (Station No. 05AA023, near Waldron's Corner) on 21 and 28 October was 10.7 $m^3 \cdot s^{-1}$ and 14.4 $m^3 \cdot s^{-1}$, respectively. Streamflows during the 28 October survey (above the FSL) were approximately 35% higher than those recorded on the earlier date (below the FSL). For this reason, stream depth readings (hence quality of holding areas) in the upper section may have been overrated relative to values obtained below the FSL. In general, streamflows recorded in October 1985 were considerably above average (Table 4.1); therefore late-fall holding capability may have been overestimated in relation to average conditions.

Table 6.1 Extent and description of aquatic habitat types in the Crowsnest River, below the FSL (confluence with Oldman River to km 9.1).

Habitat Type	No. Units	Wetted Width (m) Mean	Wetted Width (m) S.D.	Length (m) Mean	Length (m) S.D.	Total Length (m)	%	Area (m²)	%
Riffle/Rapids									
RF	18	25.1	4.0	119.7	96.8	2 155	23.2	55 830	25.5
RF/BG	2	24.5	-	180.0	-	360	3.9	8 910	4.1
RA	12	19.0	4.0	75.0	55.7	900	9.7	16 680	7.6
RA/BG	4	17.0	3.5	111.3	44.4	445	4.8	8 148	3.7
RA/RF	-	-	-	-	-	-	-	-	-
Combined	36	22.1	5.1	107.2	81.7	3 860	41.6	89 568	40.9
Run									
R1	10	19.8	1.7	89.5	35.1	895	9.7	18 075	8.3
R2	14	21.0	6.0	58.6	28.4	820	8.8	17 935	8.2
R2/BG	1	25.0	-	115.0	-	115	1.2	2 875	1.3
R3	27	24.7	4.9	130.7	68.0	3 530	38.1	88 790	40.5
R3/BG	1	31.0	-	55.0	-	55	0.6	1 705	0.8
Combined	53	22.9	5.3	102.2	61.6	5 415	58.4	129 380	59.1
Total	89	-	-	-	-	9 275	100.0	218 948	100.0

Pools	**No. Units**	**Features**	**No. Units**
P1	3	CH	6
P2	3	LG	4
P3	Present		
Total	6	**Total**	10

Table 6.2 Extent and description of aquatic habitat types in the Crowsnest River, above the FSL (km 9.1 to Lundbreck Falls).

Habitat Type	No. Units	Wetted Width (m) Mean	Wetted Width (m) SD	Length (m) Mean	Length (m) SD	Total Length (m)	%	Area (m²)	%
Riffle/Rapids									
RF	13	21.4	2.8	112.3	62.4	1 460	20.8	31 480	21.0
RF/BG	1	26.5	-	95.0	-	95	1.4	2 518	1.7
RA	7	21.1	3.5	64.3	57.5	450	6.4	8 300	5.5
RA/BG	13	22.0	3.5	96.5	58.8	1 255	17.9	27 005	18.0
RA/RF	-	-	-	-	-	-	-	-	-
Combined	34	21.7	3.3	95.9	61.7	3 260	46.5	69 303	46.2
Run									
R1	7	20.4	4.3	64.3	37.3	515	7.3	9 588	6.4
R2	24	19.4	3.5	55.0	56.1	1 320	18.8	26 438	17.7
R2/BG	2	23.8	-	95.0	-	190	2.7	4 513	3.0
R3	10	23.4	2.7	161.0	104.5	1 610	23.0	37 595	25.1
R3/BG	2	21.3	-	57.5	-	115	1.7	2 425	1.6
Combined	45	20.7	3.8	81.9	78.6	3 750	53.5	80 559	53.8
Total	79	-	-	-	-	7 010	100.0	149 862	100.0

Pools	**No. Units**	**Features**	**No. Units**
P1	6	CH	7
P2	14	LG	12
P3	Present		
Total	20	**Total**	19

Table 6.3 Comparison of aquatic habitat types above and below the FSL, Crowsnest River[1].

Habitat Type	Above FSL				Below FSL				Combined	
	Length (m)	%	Area (m^2)	%	Length (m)	%	Area (m^2)	%	Length (m)	Area (m^2)
Riffle/Rapids										
RF	1 460	40.4	31 480	36.1	2 155	59.6	55 830	63.9	3 615	87 310
RF/BG	95	20.9	2 518	22.0	360	79.1	8 910	78.0	455	11 428
RA	450	33.3	8 300	33.2	900	66.7	16 680	66.8	1 350	24 980
RA/BG	1 255	73.8	27 005	76.8	445	26.2	8 148	23.2	1 700	35 153
RA/RF	-	-	-	-	-	-	-	-	-	-
Combined	3 260	45.8	69 303	43.6	3 860	54.2	89 568	56.4	7 120	158 871
Run										
R1	515	36.5	9 588	34.7	895	63.5	18 075	65.3	1 410	27 663
R2	1 320	61.7	26 438	59.6	820	38.3	17 935	40.4	2 140	44 373
R2/BG	190	62.3	4 513	61.1	115	37.7	2 875	38.9	305	7 388
R3	1 610	31.3	37 595	29.7	3 530	68.7	88 790	70.3	5 140	126 385
R3/BG	115	67.7	2 425	58.7	55	32.3	1 705	41.3	170	4 130
Combined	3 750	40.9	80 559	38.4	5 415	59.1	129 380	61.6	9 165	209 939
Total	7 010	43.0	149 862	40.6	9 275	57.0	218 948	59.4	16 285	368 810

Habitat Type	Above FSL		Below FSL		Combined	Habitat Type	Above FSL		Below FSL		Combined
	No. Units	%	No. Units	%			No. Units	%	No. Units	%	
Pools						**Features**					
P1	6	66.7	3	33.3	9	CH	7	53.8	6	46.2	13
P2	14	82.3	3	17.7	17	LG	12	75.0	4	25.0	16
P3	Present	-	Present	-	Present						
Combined	20	76.9	6	23.1	26		19	65.5	10	34.5	29

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[1] The percentage availability of the various habitat types above and below the FSL is a function of the total length of the study area (i.e., an increase or decrease in the length of the portion above FSL would alter the percentage habitat loss accordingly).

Habitat mapping coverage included the section from the damsite to the North Fork Bridge (Figure 3.2), a center-line distance of approximately 36 km. Within this section, 37 874 m (37.9 km) of linear habitat was delineated. The marked difference between the center-line and habitat type distance reflects the common occurrence of braided channel complexes (i.e., resulting in double accounting), particularly below the FSL. The study area (damsite to North Fork Bridge) encompassed an estimated 1 113 685 m^2 (111.4 ha) of aquatic habitat at fall streamflows. The average gradient (determined from 1:5000 mapping) for the Oldman River from the damsite (km 316) to the FSL (km 338) is 3.1 m/km. Above the FSL the average gradient is approximately 6.8 m/km (determined from 1:50 000 mapping for the section between km 339.4-348.5).

Of the total stream length (center-line distance) in the study section (36 km), 22 km (61%) are situated below the FSL and 14 km (39%) above FSL. Values for total habitat distance (37.9 km) are as follows: below the FSL - 24.4 km (64%) and above the FSL - 13.5 km (36%). On a surface area basis, approximately 82.0 ha (74%) are situated below the FSL and 29.4 ha (26%) are situated above the FSL.

Below the FSL, 177 discrete habitat units were identified (Appendix B3); applied over a distance of 22 km they provide a diversity of 8 units/km. The contribution of the various habitat types below and above the FSL are provided in Tables 6.4 and 6.5, respectively. Habitat type availability above and below FSL is compared in Table 6.6. With regard to major feeding/holding areas, the section above FSL contains only 15% of the total habitat available within the Oldman River study section.

6.3 CASTLE RIVER

Habitat evaluation and mapping was carried out on the Castle River on 22 October (below FSL) and 27 October (above FSL). The discharge (Station No. 05AA022, near Beaver Mines) on 22 and 28 October was 20.6 $m^3 \cdot s^{-1}$ and 31.5 $m^3 \cdot s^{-1}$, respectively (Figure 4.3). Streamflows at the time of the 28 October survey (above the FSL) were 53% higher than those experienced during the 21 October survey (below the FSL). For this reason it is apparent that the suitability of major feeding/holding areas in the upper Castle River may have been overrated in comparison to those below the FSL. Late October flows in the Castle River were well above average in 1985 (Table 4.1); consequently, habitat suitability as it relates to feeding/holding during low-flow periods may have been exaggerated in comparison to other years.

Table 6.4 Extent and description of aquatic habitat types in the Oldman River, below the FSL (dam site to km 337.9).

Habitat Type	No. Units	Wetted Width (m) Mean	Wetted Width (m) SD	Length (m) Mean	Length (m) SD	Total Length (m)	%	Area (m²)	%
Riffle/Rapids									
RF	17	32.7	10.3	212.7	202.2	3 615	14.9	103 400	12.6
RF/BG	-	-	-	-	-	-	-	-	-
RA	36	28.4	10.2	151.5	76.2	5 455	22.4	170 463	20.8
RA/BG	7	27.5	9.1	168.6	112.4	1 180	4.8	35 188	4.3
RA/RF	4	34.4	7.2	175.0	97.6	700	2.9	25 450	3.1
Combined	64	29.8	10.2	171.1	129.6	10 950	45.0	334 501	40.8
Run									
R1	26	25.6	7.9	175.6	141.3	4 600	18.9	119 913	14.7
R2	31	37.8	15.3	214.3	165.1	6 643	27.3	266 613	32.5
R2/BG	1	30.0	-	195.0	-	195	0.8	5 850	0.7
R3	15	45.3	11.9	130.0	53.2	1 950	8.0	92 913	11.3
R3/BG	-	-	-	-	-	-	-	-	-
Combined	73	34.9	14.4	182.9	142.4	13 388	55.0	485 289	59.2
Total	137	-	-	-	-	24 338	100.0	819 790	100.0

Pools	**No. Units**	**Features**	**No. Units**
P1	2	CH	14
P2	15	LH	9
P3	Present		
Total	17	**Total**	23

Table 6.5 Description and extent of aquatic habitat types in the Oldman River, above the FSL (km 337.9 to km 351.5).

Habitat Type	No. Unit[a]	Average Width (m)[b]	Total Length (m)[c]	%	Area (m^2)	%
Riffle/Rapids						
RF	-	30	680	5.0	20 400	7.0
RF/BG	-	-	-	-	-	-
RA	-	20	2 765	20.4	55 300	18.8
RA/BG	-	20	3 850	28.5	77 000	26.2
RA/RF	-	-	-	-	-	-
Combined	-	20-30	7 295	53.9	152 700	52.0
Run						
R1	17	15	1 390	10.3	20 850	7.1
R2	-	20	3 296	24.3	65 920	22.4
R2/BG	-	-	-	-	-	-
R3	-	35	1 555	11.5	54 425	18.5
R3/BG	-	-	-	-	-	-
Combined	-	15-35	6 241	46.1	141 195	48.0
Total	-	-	13 536	100.0	293 895	100.0

Pools	No. Units	Features	No. Units
P1	2	CH	10
P2	6	LH	2
P3	Present		
Total	8	**Total**	12

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[a] Habitat mapping at 1:50 000 scale; only major features (R1, P1, etc.) identified individually.

[b] Wetted width values determined from 1:5000 airphotos available only for lower portion of section (km 337.9-342.7); values extrapolated for remainder of section.

[c] Total length, the sum of measured values from 1:5000 air photos (lower portion) and percentage composition estimates (upper portion).

Table 6.6 Comparison of aquatic habitat types above and below the FSL, Oldman River[1].

	Above FSL				Below FSL				Combined	
Habitat Type	Length (m)	%	Area (m^2)	%	Length (m)	%	Area (m^2)	%	Length (m)	Area (m^2)
Riffle/Rapids										
RF	680	15.8	20 400	16.5	3 615	84.2	103 400	83.5	4 295	123 800
RF/BG	-	-	-	-	-	-	-	-	-	-
RA	2 765	33.6	55 300	24.5	5 455	66.4	170 463	75.5	8 220	225 763
RA/BG	3 850	76.5	77 000	68.6	1 180	23.5	35 188	31.4	5 030	112 188
RA/RF	-	0	-	0	700	100.0	25 450	100.0	700	25 450
Combined	7 295	40.0	152 700	31.3	10 950	60.0	334 501	68.7	18 245	487 201
Run										
R1	1 390	23.2	20 850	14.8	4 600	76.8	119 913	85.2	5 990	140 763
R2	3 296	33.2	65 920	19.8	6 643	66.8	266 613	80.2	9 939	332 533
R2/BG	-	0	-	0	195	100.0	5 850	100.0	195	5 850
R3	1 555	44.4	54 425	36.9	1 950	55.6	92 913	63.1	3 505	147 338
R3/BG	-	-	-	-	-	-	-	-	-	-
Combined	6 241	31.8	141 195	22.5	13 388	68.2	485 289	77.5	19 629	626 484
Total	13 536	35.7	293 895	26.4	24 338	64.3	819 790	73.6	37 874	1 113 685

	Above FSL		Below FSL				Above FSL		Below FSL		
Habitat Type	No. Units	%	No. Units	%	Combined	Habitat Type	No. Units	%	No. Units	%	Combined
Pools						**Features**					
P1	2	50.0	2	50.0	4	CH	10	41.7	14	58.3	24
P2	6	28.6	15	71.4	21	LG	2	18.2	9	81.8	11
P3	Present	-	Present	-	Present						
Combined	8	32.0	17	68.0	25		12	34.3	23	65.7	35

[1] The percentage availability of the various habitat types above and below the FSL is a function of the total length of the study area (i.e., an increase or decrease in the length of the portion above FSL would alter the percentage habitat loss accordingly).

Habitat mapping coverage included the section from the Castle River-Oldman River confluence to the confluence of Mill Creek (Figure 3.3), a center-line distance of approximately 24 km. Within this section, 25 776 m (25.8 km) of habitat was delineated. The difference between the center-line and habitat distance is largely due to double-accounting of discrete habitat types in braided channel sections (mainly below FSL). The study area encompassed an estimated 736 983 m^2 (73.7 ha) of aquatic habitat (at fall streamflows). The average gradient (determined from 1:5000 mapping) from the confluence with the Oldman River (km 0) to the FSL (km 12.2) is 3.5 m/km. Above the FSL the average gradient is approximately 5.0 m/km (determined from 1:50 000 mapping for the section between km 21.9-28.0).

Of the total stream length (center-line distance) in the study section (24.0 km), 12.2 km (51%) are situated below and 11.8 km (49%) are situated above the FSL. Values for total habitat distance (25.8 km) are as follows: below the FSL -14.0 km (54%) and above the FSL - 11.8 km (46%). On a surface area basis, approximately 38.6 ha (52%) are situated below the FSL, whereas 35.0 ha (48%) are located above the FSL.

Below the FSL, 123 discrete habitat units were identified (Appendix B4); applied over a distance of 12.2 km they provide a diversity of 10.1 units/km. The contribution of the various habitat types below the FSL is provided in Table 6.7; similar data for the reach above the FSL is presented in Table 6.8. Habitat availability above and below FSL is compared in Table 6.9. Although overall availability of aquatic habitat above and below the FSL is similar (48% vs 54%) there are wide discrepancies in abundance of individual habitat types. For example, when the surface area contribution of R1/P1 (i.e., major feeding/holding areas) is examined only 22% is situated above the FSL.

Table 6.7 Extent and description of aquatic habitat types in the Castle River, below the FSL (confluence with Oldman River to km 12.2).

Habitat Type	No. Units	Wetted Width (m) Mean	Wetted Width (m) SD	Length (m) Mean	Length (m) SD	Total Length (m)	%	Area (m^2)	%
Riffle/Rapids									
RF	9	32.2	11.6	98.3	56.7	885	6.3	27 125	7.0
RF/BG	-	-	-	-	-	-	-	-	-
RA	27	26.6	7.6	170.6	74.5	4 605	32.9	122 764	31.5
RA/BG	5	27.5	14.3	237.0	142.6	1 185	8.5	30 263	7.8
RA/RF	2	26.3	-	262.5	-	525	3.8	8 900	2.3
Combined	43	27.9	10.1	167.4	99.9	7 200	51.5	189 052	48.6
Run									
R1	21	24.8	7.6	111.4	61.6	2 740	19.6	66 063	17.0
R2	22	31.3	8.7	125.2	53.2	2 755	19.7	86 513	22.2
R2/BG	1	35.0	-	360.0	-	360	2.6	12 600	3.2
R3	7	36.4	9.5	120.0	75.2	840	6.0	33 300	8.6
R3/BG	1	20.0	-	80.0	-	80	0.6	1 600	0.4
Combined	52	29.2	9.3	122.6	68.3	6 775	48.5	200 076	51.4
Total	95	-	-	-	-	13 975	100.0	389 128	100.0

Pools	**No. Units**	**Features**	**No. Units**
P1	5	CH	14
P2	6	LG	3
P3	Present		
Total	11	**Total**	17

Table 6.8 Description and extent of aquatic habitat types in the Castle River, above the FSL (km 12.2 to km 24.0).

Habitat Type	No. Units[a]	Average Width (m)[b]	Total Length (m)[c]	%	Area (m^2)	%
Riffle/Rapids						
RF	-	35	425	3.6	14 875	4.2
RF/BG	-	-	-	-	-	-
RA	-	30	4 703	39.9	141 090	40.2
RA/BG	-	30	1 750	14.8	52 500	15.0
RA/RF	-	-	-	-	-	-
Combined	-	30-35	6 878	58.3	208 465	59.4
Run						
R1	9	20	945	8.0	18 900	5.4
R2	-	30	3 148	26.7	94 440	26.9
R2/BG	-	-	-	-	-	-
R3	-	35	830	7.0	29 050	8.3
R3/BG	-	-	-	-	-	-
Combined	-	20-35	4 923	41.7	142 390	40.6
Total	-	-	11 801	100.0	350 855	100.0

Pools	No. Units	Features	No. Units
P1	7	CH	10
P2	3	LH	7
P3	Present		
Total	10	**Total**	17

[a] Habitat mapping at 1:50 000 scale; only major features (R1, P1, etc.) identified individually.

[b] Wetted width values determined from 1:5000 airphotos available only for lower portion of section (km 12.2-16.7); values extrapolated for remainder of section.

[c] Total length, the sum of measured values from 1:5000 air photos (lower portion) and percentage composition estimates from 1:50 000 NTS maps (upper portion).

Table 6.9 Comparison of aquatic habitat types above and below the FSL, Castle River[1].

Habitat Type	Above FSL				Below FSL				Combined	
	Length (m)	%	Area (m^2)	%	Length (m)	%	Area (m^2)	%	Length (m)	Area (m^2)
Riffle/Rapids										
RF	425	32.4	14 875	38.1	885	67.6	27 125	69.6	1 310	39 000
RF/BG	-	-	-	-	-	-	-	-	-	-
RA	4 703	50.5	141 090	53.5	4 605	49.5	122 764	46.5	9 308	263 854
RA/BG	1 750	59.6	52 500	63.4	1 185	40.4	30 263	36.6	2 935	82 763
RA/RF	-	0	-	0	525	100.0	8 900		525	8 900
Combined	6 878	48.9	208 465	52.8	7 200	51.1	186 052	47.2	14 078	394 517
Run										
R1	945	25.6	18 900	22.2	2 740	74.4	66 063	77.8	3 685	84 963
R2	3 148	53.3	94 440	52.2	2 755	46.7	86 513	47.8	5 903	180 953
R2/BG	-	0	-	0	360	100.0	12 600	100.0	360	12 600
R3	830	49.7	29 050	46.6	840	50.3	33 300	53.4	1 670	62 350
R3/BG	-	0	-	0	80	100.0	1 600	100.0	80	1 600
Combined	4 923	42.1	142 390	41.6	6 775	57.9	200 076	58.4	11 698	342 466
Total	11 801	45.8	350 855	47.6	13 975	54.2	386 128	52.4	25 776	736 983

Habitat Type	Above FSL		Below FSL		Combined	Habitat Type	Above FSL		Below FSL		Combined
	No. Units	%	No. Units	%			No. Units	%	No. Units	%	
Pools						**Features**					
P1	7	58.3	5	41.7	12	CH	10	41.7	14	58.3	24
P2	3	33.3	6	66.7	9	LG	7	70.0	3	30.0	10
P3	Present	-	Present	-	Present						
Combined	10	47.6	11	52.4	21		17	50.0	17	50.0	34

[1] The percentage availability of the various habitat types above and below the FSL is a function of the total length of the study area (i.e., an increase or decrease in the length of the portion above FSL would alter the percentage habitat loss accordingly).

SECTION 7.0
FISH POPULATIONS

7.1 CROWSNEST RIVER

7.1.1 BROWN TROUT

7.1.1.1 Distribution and Relative Abundance

Brown trout were first introduced to the Crowsnest River in 1967 with additional plants in 1968 and 1969. The descendants of this original stock have established a reproducing population in the Crowsnest River below Lundbreck Falls. Brown trout also have been reported in angler catches above the falls, although the origin and status of this population is unknown. During the present study, this species was recorded in all general electrofishing sections and during both the August and October sample periods. Forty-three brown trout (2% of the total sportfish catch) were recorded in general survey sections in the Crowsnest River (Table 7.1). Of these, 28 fish (65%) were captured in section ES2; lowest numbers (three fish; 7%) were taken in ES1. An additional 40 brown trout were captured in population survey sections; 33 (82%) of these were recorded in Section CNP3 in September (Table 7.1).

The highest density (3.40 fish/km) for brown trout was recorded in section ES2 during August (Tables 7.2 to 7.4); high use of this section likely reflects a suitability for holding/feeding activities by large juveniles and adults. Differences in brown trout CPUE values for sections ES1, ES2, and ES3 between the August and October periods likely reflect spawning related movements (Tables 7.2 and 7.3).

7.1.1.2 Spawning

Extent and Distribution

Twenty-one brown trout redds were located during October 1985; all were situated in the upper Crowsnest River (i.e., upstream of km 9.5 and above the FSL). Spawning sites exhibited a "clumped" distribution with 19 of the redds being located in two specific areas (Figure 7.1) (i.e., 12 redds between km 10.2 and 10.8, and seven redds at km 14.2). Two additional redds were recorded, one at km 9.6 and one at km 12.7. The results of electrofishing surveys in early October tend to corroborate the spawning distribution based on the location of redds. Adult brown trout were infrequently

Table 7.1 Numbers and percentage composition of sportfish captured by boat electrofishing in all study sections on the Crowsnest River, August-October 1985.

			Species Abundance and Percentage Composition in the Catch											
			Brown Trout		Rainbow trout		Cutthroat trout		Bull trout		Mountain whitefish		Total Catch	
	Month	Section	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
General Surveys	Aug.	ES1	1	< 1.0	36	4.2	0	0.0	0	0.0	824	95.8	861	100.0
		ES2	17	6.3	67	24.8	0	0.0	0	0.0	186	68.9	270	100.0
		ES3	3	< 1.0	33	2.9	0	0.0	0	0.0	1090	96.8	1126	100.0
		Total	21	1.0	136	6.0	0	0.0	0	0.0	2100	93.0	2257	100.0
	Oct.	ES1	2	1.1	35	20.0	0	0.0	2	1.1	136	77.8	175	100.0
		ES2	11	12.4	41	46.1	0	0.0	1	1.1	36	40.4	89	100.0
		ES3A & ES3	9	3.3	36	13.2	0	0.0	0	0.0	228	83.5	273	100.0
		Total	22	4.1	112	20.9	0	0.0	3	<1.0	400	74.5	537	100.0
		Combined	43	1.5	248	8.9	0	0.0	3	<1.0	2500	89.5	2794	100.0
Population Surveys	Oct.	CNP1[a]	4	17.4	7	30.4	1	4.4	0	0.0	11	47.8	23	100.0
	Oct.	CNP2[b]	0	0.0	3	75.0	0	0.0	0	0.0	1	25.0	4	100.0
	Sep.	CNP3[c]	33	4.8	128	18.7	0	0.0	0	0.0	524	76.5	685	100.0
	Oct.	CNP3[b]	3	6.0	18	36.0	0	0.0	0	0.0	29	58.0	50	100.0
		Total	40	5.2	156	20.5	1	<1.0	0	0.0	565	74.1	762	100.0
	All Surveys	**Combined**	83	2.3	404	11.4	1	<1.0	3	<1.0	3065	86.2	3556	100.0

[a] combined catch from 3 runs.
[b] catch from 1 run.
[c] combined catch from 4 runs.

Table 7.2 Summary of boat electrofishing catch and CPUE (catch/km and catch/min) for the three major sportfish species in Section ES1 on the Crowsnest River, August to October 1985.

							Catch and CPUE (catch/km and catch/min)								
							Brown trout			Mountain whitefish			Rainbow trout		
Section	Location (km)	Date	Sample Interval (h)	Discharge (m^3/s)	Sample Effort (min)	Sample Distance (km)	No. Caught	Catch/ km	Catch/ min	No. Caught	Catch/ km	Catch/ min	No. Caught	Catch/ km	Catch/ min
ES1	**0.0 to 4.1**	**19 Aug.**	**1300–1800**	**3.22**	**69.9**	**4.1**	**1**	**0.24**	**0.01**	**824**[a]	**200.98**	**11.79**	**36**	**8.78**	**0.52**
Stop #1	3.5				7.9	0.6				138	230.00	17.47	4	6.67	0.51
#2	2.6				15.6	0.9				178	197.78	11.41	8	8.89	0.51
#3	1.7				18.7	0.9	1	1.11	0.05	363	403.33	19.41	4	4.44	0.21
#4	0.7				13.6	1.0				16	16.00	1.18	5	5.00	0.37
#5	0.0				14.1	0.7				129	184.29	9.15	15	21.43	1.06
ES1	**0.0–4.1**	**4 Oct.**	**1730–2000**	**3.32**	**34.8**	**4.1**	**2**	**0.49**	**0.06**	**136**[b]	**33.17**	**3.91**	**35**	**8.54**	**1.01**
Stop #1	3.1				9.9	1.0				3	3.00	0.30	4	4.00	0.40
#2	2.6				4.5	0.5				9	18.00	2.00	6	12.00	1.33
#3	2.2				5.4	0.4	1	2.50	0.18	19	47.50	3.52	11	27.50	2.04
#4	1.3				7.1	0.9	1	1.11	0.14	33	36.67	4.65	11	12.22	1.55
#5	0.0				7.9	1.3				72	55.39	9.11	3	2.31	0.38

[a] includes 50% of 1221 mountain whitefish observed but not captured.

[b] includes 50% of 44 mountain whitefish observed but not captured.

Table 7.3 Summary of boat electrofishing catch and CPUE (catch/km and catch/min) for the three major sportfish species in section ES2 on the Crowsnest River, August to October 1985.

Section	Location (km)	Date	Sample Interval (h)	Discharge (m^3/s)	Sample Effort (min)	Sample Distance (km)	Brown trout No. Caught	Brown trout Catch/km	Brown trout Catch/min	Mountain whitefish No. Caught	Mountain whitefish Catch/km	Mountain whitefish Catch/min	Rainbow trout No. Caught	Rainbow trout Catch/km	Rainbow trout Catch/min
ES2	**4.1 to 9.1**	**22 Aug.**	**1300-1830**	**3.02**	**59.6**	**5.0**	**17**	**3.40**	**0.28**	**186**[a]	**37.20**	**3.12**	**67**	**13.40**	**1.12**
Stop #1	8.5				6.4	0.6	2	3.33	0.31	5	8.33	0.78	11	18.33	1.72
#2	7.1				10.8	1.4	1	0.71	0-.09	26	18.57	2.41	9	6.43	0.83
#3	6.6				7.2	0.5	1	2.00	0.14	41	82.00	5.69	4	8.00	0.56
#4	6.3				2.7	0.3	2	6.67	0.74	22	73.33	8.15	11	36.67	4.07
#5	5.8				10.0	0.5	3	6.00	0.30	25	50.00	2.50	7	14.00	0.70
#6	5.5				4.6	0.3	2	6.67	0.44	32	106.67	6.96	9	30.00	1.96
#7	4.8				6.7	0.7	2	2.86	0.30	13	18.57	1.94	9	12.86	1.34
#8	4.1				11.2	0.7	4	5.71	0.36	22	31.43	1.96	7	10.00	0.62
ES2	**4.1 to 9.1**	**4 Oct.**	**1315-1730**	**3.32**	**34.4**	**5.0**	**11**	**2.20**	**0.32**	**37**[b]	**7.40**	**1.08**	**41**	**8.20**	**1.19**
Stop #1	8.9				1.9	0.2							4	20.00	2.10
#2	8.6				1.6	0.3				23	76.67	14.38	1	3.33	0.63
#3	7.8				7.8	0.8							5	6.25	0.64
#4	7.5				1.9	0.3	3	10.00	1.58				4	13.33	2.11
#5	6.7				7.3	0.8							10	12.5	1.37
#6	5.8				6.7	0.9	3	3.33	0.45	1	1.11	0.15	16	17.77	2.39
#7	4.8				5.5	1.0				10	10.00	1.82	1	1.00	0.18
#8	4.1				1.7	0.7	5	7.14	2.94	3	4.29	1.76			

[a] Includes 50% of the 128 mountain whitefish observed but not captured.
[b] Includes 50% of the 30 mountain whitefish observed but not captured.

Table 7.4 Summary of boat electrofishing catch and CPUE (catch/km and catch/min) for the three major sportfish species in sections ES3A and ES3 on the Crowsnest River, August to October 1985.

Section	Location (km)	Date	Sample Interval (h)	Discharge (m^3/s)	Sample Effort (min)	Sample Distance (km)	Catch and CPUE (catch/km and catch/min)								
							Brown trout			Mountain whitefish			Rainbow trout		
							No. Caught	Catch/ km	Catch/ min	No. Caught	Catch/ km	Catch/ min	No. Caught	Catch/ km	Catch/ min
ES3A	**9.1 to 12.6**	**5 Oct.**	**1530–1830**	**3.31**	**20.1**	**2.3**[a]	**4**	**1.74**	**0.20**	**6**	**2.60**	**0.30**	**9**	**3.91**	**0.45**
Stop #1	11.4				11.8	1.2	2	1.67	0.17	2	1.67	0.17	1	0.83	0.08
#2	10.5				3.7	0.9	1	1.11	0.27						
#3	10.3				4.6	0.2	1	5.00	0.22	4	20.00	0.87	8	40.00	1.74
ES3	**12.6 to 15.4**	**20 Aug.**	**1330–1530**	**3.13**	**18.3**	**2.8**	**3**	**1.07**	**0.16**	**1090**[b]	**389.29**	**59.56**	**33**	**11.79**	**1.80**
Stop #1	15.2				..9	0.2				96	480.00	33.10	6	30.00	2.07
#2	14.9				1.8	0.3				244	813.33	135.56	1	3.33	0.56
#3	14.6				0.9	0.3				231	770.00	256.67	5	16.67	5.56
#4	13.9				3.0	0.7				181	258.57	60.33	5	7.14	1.67
#5	13.3				4.9	0.6				146	243.33	29.80	12	20.00	2.45
#6	12.6				4.8	0.7	3	4.29	0.63	192	274.29	40.00	4	5.71	0.83
ES3	**12.6 to 15.4**	**5 Oct.**	**1300–1530**	**3.31**	**27.6**	**2.8**	**5**	**1.79**	**0.18**	**222**[c]	**79.29**	**8.04**	**27**	**9.64**	**0.98**
Stop #1	15.2				1.7	0.2				33	165.00	19.41	3	15.00	1.76
#2	15.0				3.5	0.2				38	190.00	10.86	2	10.00	0.57
#3	14.8				0.4	0.2				72	360.00	180.00			
#4	14.6				2.6	0.2	1	5.00	0.39	24	120.00	9.23			
#5	14.1				3.6	0.5	3	6.00	0.83	10	20.00	2.78	1	2.00	0.28
#6	13.9				1.8	0.2				27	135.00	15.00	2	10.00	1.11
#7	13.6				3.6	0.3	1	3.33	0.28	18	60.00	5.00	7	23.33	1.94
#8	13.0				6.3	0.6							12	20.00	1.90
#9	12.6				4.1	0.4									

[a] only 2.3 km of section ES3A sampled.
[b] includes 50% of the 1925 mountain whitefish observed but not captured.
[c] includes 50% of the 276 mountain whitefish observed but not captured.

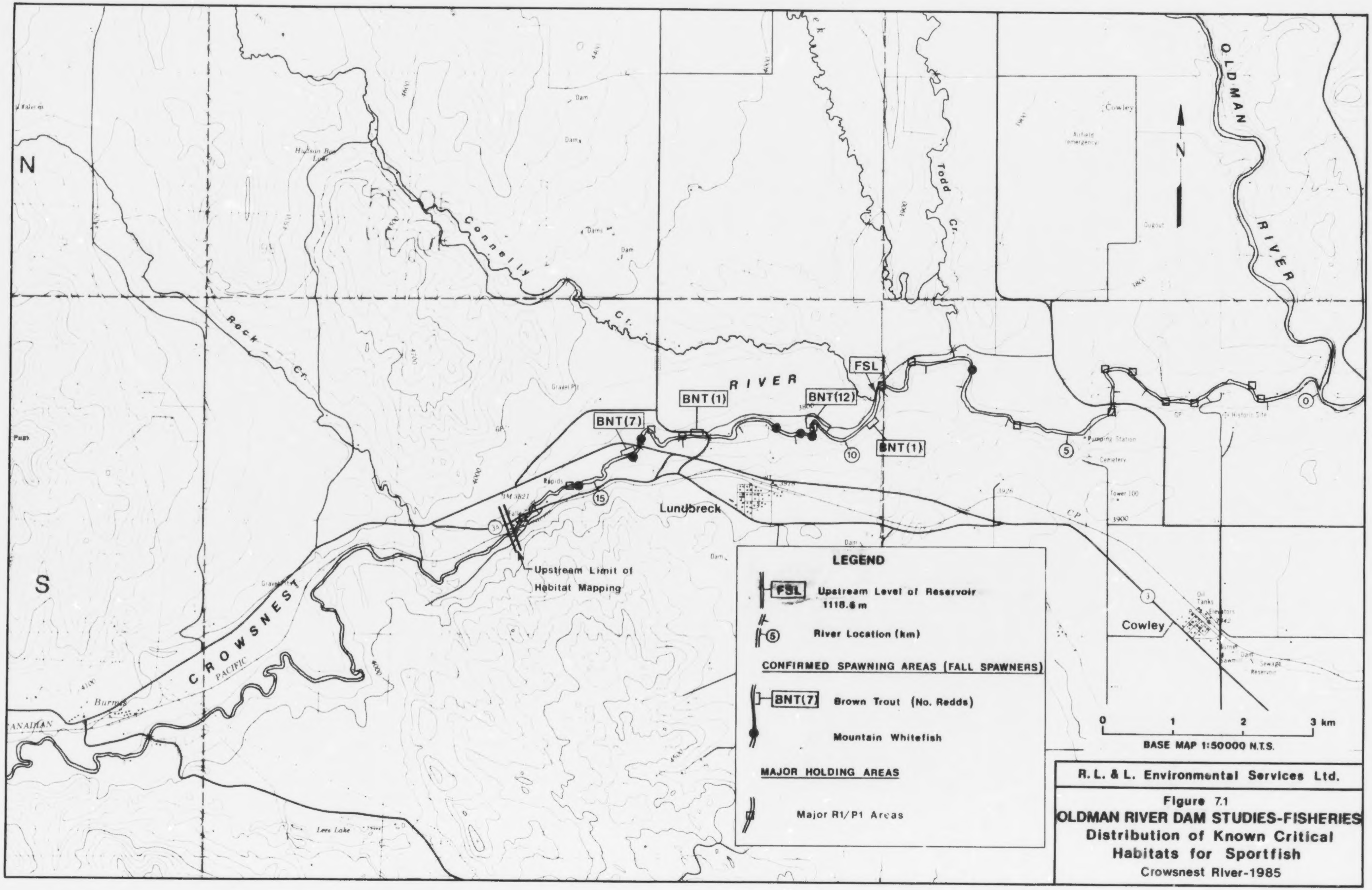
N
S
N
OLDMAN RIVER
Connelly Cr.
Rock Cr.
Todd Cr.
RIVER
CROWSNEST
CANADIAN PACIFIC
Burmis
Lundbreck
Cowley
Cowley
Lees Lake
Hudson Bay Lake
Airfield (emergency)
Dam
Dams
Gravel Pit
Rapids
Falls
Pumping Station
Cemetery
Historic Site
Oil Tanks
Elevators
Sewage Reservoir
Sawmill
FSL
BNT(7)
BNT(1)
BNT(12)
BNT(1)
0
5
10
15
3
Upstream Limit of Habitat Mapping
LEGEND
FSL Upstream Level of Reservoir 1118.6 m
5 River Location (km)
CONFIRMED SPAWNING AREAS (FALL SPAWNERS)
BNT(7) Brown Trout (No. Redds)
Mountain Whitefish
MAJOR HOLDING AREAS
Major R1/P1 Areas
0 1 2 3 km
BASE MAP 1:50000 N.T.S.

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Figure 7.1
OLDMAN RIVER DAM STUDIES-FISHERIES
Distribution of Known Critical Habitats for Sportfish
Crowsnest River-1985

encountered in the lower Crowsnest River during the spawning season suggesting limited spawning occurs in this reach. Adult brown trout were encountered more frequently in the upper Crowsnest River and were often situated at or near areas where redds were present or later identified.

Examination of gonad maturity in sacrificed individuals indicated that fish greater than 400 mm in length (i.e., Age-3 to 5 age-classes) were mature fish that would have spawned in fall 1985. Fish of this size made up approximatley 20% of all brown trout captured in the Crowsnest River. The application of this percentage to the estimated population of 300 brown trout in the Crowsnest River (see Section 7.1.5.1) produces an estimated spawning population in the order of 60 individuals. This is similar to the spawning population estimate derived from redd counts (i.e., for 21 redds, at an average of two brown trout/redd = 42 spawners).

Chronology

Gonad maturity data (i.e., presence of ripe or spent adults in catch) and timing of redd observations suggest that brown trout spawning in the Crowsnest River commenced in early October. Redds were first observed on 5 October; adult spawners were located in the vicinity of the redds on this date indicating that spawning was in progress or had been recently completed. Daytime water temperatures generally ranged between 6.0°C and 8.5°C on this date and during the previous week (Appendix G). Temperatures of this magnitude are within the preferred range for brown trout spawning (Scott and Crossman 1973; Witzel and MacCrimmon 1983a). The physical characteristics of redds (N=14) were recorded on 7, 8, and 9 October. At this time it was assumed that spawning had been completed; however, the capture of a ripe female in section CNP3 on 17 October, indicated that this was not the case. Additional redd surveys were conducted on 20, 21, and 23 October during which an additional seven redds were identified. All but one (redd at km 9.6) were situated adjacent to previous redds in the lower spawning section (km 10.2-10.8). The unseasonally low water temperatures that occurred following the initial spawning period appear to have delayed the completion of spawning (Appendix G). Recorded daytime water temperatures ranged from 0.5°C to 5.0°C during the period 9-19 October. By 20 October, day-time maximum temperatures had returned to previous levels, apparently stimulating the continuation of spawning activities.

In summary, brown trout spawning occurred over a three week period in October; most occurred during a brief period in early October (i.e., approximately 1-5 October).

Subsequent low water temperatures appeared to curtail further spawning activity. The balance of the spawning activity likely occurred between 17-20 October, at which time water temperatures had recovered. Water temperatures during the two spawning periods varied between 6.0-8.5°C. Although surveys conducted on 23 and 24 October detected two additional redds (both associated with the lower spawning areas), these redds may have been missed on the 20 October survey (i.e., ground access survey only). The low numbers of new redds and the decline of water temperatures, below the preferred range for spawning indicated spawning was completed and the majority of redds had been enumerated.

Microhabitat Selection

Redd sites displayed considerable similarity in terms of habitat type, depth-velocity characteristics, and substrate. Other factors common to most sites were the close proximity to holding cover and the channel hydraulics. The habitat types most often selected for spawning were riffle (RF), shallow-fast run (R3), and associated boulder garden types (RF/BG, R3/BG) (Table 7.5). Table 7.6 summarizes pertinent physical characteristics recorded at redd sites in the Crowsnest River. Depths and velocities recorded at redd sites on 20 and 23 October were greater than those recorded during the earlier redd survey (7-9 October). The difference was due to the increased stream discharge during late October. Assuming that conditions in early October (prior to the increased streamflows) were within the preferred range, the later spawning individuals may have spawned under less than optimum depth/velocity conditions.

The mean depth at redd sites during the period 7-9 October was 35.5 cm (± 8.4); a mean depth of 40.1 cm (± 7.6) was recorded at redds constructed during late October. Mean velocities (measured at 0.6 d) at redds during early and late October were 55.9 $cm \cdot s^{-1}$ (± 14.4) and 87.6 $cm \cdot s^{-1}$ (± 17.7), respectively. Nose velocities (10 cm above bottom) at redd sites also were lower during the early October spawning period: 53.6 $cm \cdot s^{-1}$ (± 12.4) during 7-9 October and 74.9 $cm \cdot s^{-1}$ (± 16.7) during 20-23 October.

Substrate composition was determined at 11 redd sites (Table 7.6). The substrate characterization was based on disturbed material situated within redds. Values were determined for substrate surface coarseness (substrate class) and substrate heterogeneity (Standard Deviation of $\bar{x}$ Substrate Class; Bain et al. 1985). Substrate coarseness values were similar between sites indicating similarities with respect to dominant particle size. Redd substrates were dominated by material in substrate classes 5 and 6; these classes

Table 7.5 Relative use[a] of various habitat types by major sportfish species in the Oldman River Dam Study Area (August-October 1985).

Life Requisite Function	Species	Use Rating[b]												
		RF	RF/BG	RA	RA/BG	RA/RF	R1	R2	R2/BG	R3	R3/BG	P1	P2	P3
Spawning/incubation	BNT	5	5	0	0	1	0	2	0	5	5	0	0	0
	MW	3	2	1	1	2	0	5	4	1	1	0	0	0
	RT	-	-	-	-	-	-	-	-	-	-	-	-	-
Rearing (y-o-y[c], juveniles)	BNT	1	2	2	5	1	4	3	4	2	2	2	3	2
	MW	4	5	2	3	3	1	3	3	4	4	1	2	2
	RT	4	5	3	4	3	2	2	3	2	3	2	2	2
Adult feeding/holding	BNT	1	1	1	2	1	5	3	4	1	1	5	3	1
	MW	1	2	4	5	3	4	4	5	1	2	4	3	2
	RT	1	1	2	3	2	5	3	4	1	1	5	3	1
Overwintering	BNT	0	0	1	1	1	5	4	4	0	0	5	2	1
	MW	0	0	2	2	1	5	4	4	0	0	5	2	1
	RT	0	0	1	1	1	5	4	4	0	0	5	2	1
Combined	**All Species**	**20**	**23**	**19**	**27**	**19**	**36**	**37**	**39**	**17**	**19**	**34**	**22**	**13**

[a] based on fish distribution determined in electrofishing surveys (Aug., Sep., Oct.); overwintering assessment based on October electrofishing results and depth measurements.

[b] Use Rating: 5 (high), 4 (mod.-high), 3 (mod.), 2 (low-mod.), 1 (low), 0 (nil-low).

[c] Subjective assessment based largely on literature and other studies in southern Alberta.

Table 7.6 Physical characteristics of brown trout redds in the Crowsnest River, October 1985.

Location (km)	Redd #	Survey Date	Dimensions (m)	Dimensions Area (m²)	Depth[a] x̄ ± SD	Velocity (cm·s⁻¹)[b] Nose x̄ ± SD	Velocity (cm·s⁻¹)[b] 0.6 d x̄ ± SD	Velocity (cm·s⁻¹)[b] Surface x̄ ± SD	Velocity (cm·s⁻¹)[b] Column x̄ ± SD	Substrate[c] Class x̄ ± SD	Distance from Bank (m)
14.2	1[d]	7 Oct.	1.80 x 0.57	1.03	34.0 ± 2.3	57.2 ± 7.2	53.8 ± 1.2	50.0 ± 7.2	53.7 ± 6.6	-	0.3
	2	7 Oct.	1.30 x 0.55	0.72	39.7 ± 4.8	68.2 ± 10.1	76.4 ± 9.1	75.8 ± 3.1	73.5 ± 8.9	-	5.3
	3	7 Oct.	1.30 x 1.25	1.62	25.6 ± 1.0	62.8 ± 9.8	62.8 ± 9.8	73.4 ± 4.4	66.1 ± 9.3	5.6 ± 0.8	9.4
	4	8 Oct.	1.25 x 0.60	0.75	44.5 ± 2.8	46.0 ± 13.6	50.0 ± 15.0	40.4 ± 17.6	45.5 ± 16.0	-	0.5
	5	8 Oct.	2.70 x 0.75	2.02	42.8 ± 4.8	47.0 ± 13.8	50.0 ± 14.0	52.4 ± 13.4	49.8 ± 13.9	-	1.1
	6	8 Oct.	2.45 x 0.95	2.33	26.7 ± 3.8	45.4 ± 5.7	44.4 ± 6.7	53.4 ± 2.9	47.7 ± 6.7	5.4 ± 1.4	4.0
	7	8 Oct.	1.10 x 0.70	0.77	23.3 ± 1.8	58.2 ± 6.1	60.6 ± 7.1	60.8 ± 7.1	59.5 ± 6.8	5.7 ± 1.3	13.7
12.7	1	8 Oct.	2.20 x 0.65	1.43	28.5 ± 4.1	54.6 ± 10.9	61.0 ± 8.5	70.2 ± 5.8	61.9 ± 10.8	-	2.5
10.2	1	9 Oct.	2.50 x 1.30	3.25	37.8 ± 3.4	51.2 ± 9.3	47.2 ± 11.8	56.0 ± 13.9	51.5 ± 12.4	5.6 ± 0.9	6.5
	2[d]	9 Oct.	1.20 x 0.80	0.96	32.0 ± 3.0	55.0 ± 12.8	58.4 ± 9.5	69.2 ± 14.8	58.2 ± 19.6	5.8 ± 0.9	9.3
	3	20 Oct.	2.10 x 1.00	2.10	31.4 ± 2.5	66.8 ± 5.3	71.0 ± 1.8	84.0 ± 8.3	73.9 ± 9.3	5.8 ± 1.2	4.6
10.4	1	9 Oct.	3.00 x 1.05	3.15	33.5 ± 4.6	49.6 ± 17.0	53.6 ± 14.9	70.2 ± 11.0	57.8 ± 17.1	-	0.5
	2	9 Oct.	1.30 x 0.80	1.04	36.1 ± 3.0	68.4 ± 13.9	67.2 ± 10.4	83.0 ± 1.9	72.9 ± 12.4	-	4.3
	3	9 Oct.	1.20 x 0.65	0.78	40.2 ± 4.5	48.4 ± 8.6	57.2 ± 11.6	78.4 ± 4.2	61.3 ± 15.3	5.8 ± 1.3	6.0
	4	20 Oct.	1.80 x 0.90	1.62	46.6 ± 4.1	65.6 ± 24.4	104.0 ± 10.3	119.6 ± 2.9	96.4 ± 27.4	5.8 ± 0.9	3.2
	5	20 Oct.	2.60 x 0.80	2.08	43.8 ± 3.4	88.6 ± 5.0	96.8 ± 2.3	113.4 ± 3.3	99.6 ± 11.0	-	3.5
	6	20 Oct.	1.60 x 1.20	1.92	37.4 ± 2.8	76.8 ± 7.8	82.0 ± 14.0	107.4 ± 11.1	88.7 ± 17.5	-	2.0
	7	20 Oct.	2.10 x 0.75	1.58	39.8 ± 3.4	84.6 ± 10.2	93.8 ± 7.0	108.0 ± 3.6	95.5 ± 12.2	5.6 ± 1.1	8.5
10.6	1[e]	9 Oct.	1.00 x 0.80	0.80	51.4 ± 2.2	53.2 ± 4.3	58.0 ± 7.5	75.6 ± 4.3	62.3 ± 11.1	-	2.2
10.8	1	23 Oct.	1.90 x 1.40	2.66	50.4 ± 2.6	88.0 ± 2.8	105.2 ± 0.8	122.0 ± 3.1	105.1 ± 14.1	5.4 ± 0.7	-
9.8	1	23 Oct.	2.60 x 1.05	2.73	31.0 ± 3.6	52.0 ± 11.0	59.0 ± 7.0	61.4 ± 3.3	58.1 ± 7.6	5.4 ± 0.8	3.0

[a] Mean of 5 measurements (four around periphery of redd; one at redd centre).
[b] Mean of 5 measurements taken at same locations as depth; nose velocities recorded 10 cm above bottom; 0.6 d velocities recorded at 0.6 of maximum depth.
[c] Mean of 20 values (one value assigned to every 10 cm increment).
[d] Excavated and confirmed; eggs recovered.
[e] Excavated; eggs not recovered.

include "coarse gravel" (1.6-3.2 cm) and "very coarse gravel" (3.2-6.4 cm), respectively. Relatively low standard deviation values (i.e., in the range of 0.7-0.9) indicate the presence of fairly homogeneous substrate (i.e., sorted gravels primarily in the Class 5 and 6 categories). Higher SD values (1.1-1.4) indicate a substrate mixture containing a relatively greater contribution of smaller (Class 4) and larger (Class 7) materials. The low degree of fine textured materials (silt, sand, and fine gravel -diameter of 0.2 to 0.8 cm) and very coarse material (diameter 12.8 cm+) in spawning redd materials is noteworthy. Substrate compaction in undisturbed areas adjacent to the redds ranged from low to moderate whereas degree of embeddedness (extent of filling of surface interstitial space) ranged from 25-50% at most sites. Extent of algal cover on undisturbed substrates ranged from 75-100%. Qualitative examination of the substrate composition in completed redds indicated that the majority of surface and sub-surface sediment was effectively removed during redd construction.

The majority of redds were situated near the stream bank (Table 7.6); several were situated partially underneath an undercut bank. Bank associated holding areas (undercut bank, submerged trees/branches, deep runs, etc.) were noted in close proximity to many of the redds. This suggests that cover may be a factor influencing channel placement of redds. However, site selection for redds may be more strongly influenced by channel hydraulics (i.e., selection of sites exhibiting constant flow and localized gradients). In this regard, many of the redds were situated as follows: 1) on the outer perimeter of bends, 2) at the interface between a wide shallow channel and a more confined, deeper channel, and 3) at the transitional break of a slow run into a riffle area. These situations would tend to create a localized gradient and a constant intragravel flow during the winter egg incubation period. In addition to the near-bank situated redds, there were a few redds situated closer to mid-channel. Boulders were often located in the immediate vicinity of these redds; these may have served as temporary cover. In one instance, however, a large boulder situated upstream of a redd resulted in lower velocities in the vicinity of the redd relative to the surrounding area.

In summary, brown trout spawning sites in the Crowsnest River appear to possess a number of common characteristics relating to depth, velocity, substrate, channel placement, presence of holding areas, and channel hydraulics. Substrate characteristics at the redd locations appeared to be relatively uniform suggesting that this may be a key factor in site selection. Previous workers have identified substrate composition (degree of coarseness, sand content, etc.) as being the most important factor in determining embryo survival rates and alevin-emergence success (Shirvell and Dungey 1983; Witzel and MacCrimmon 1983a). They suggested, however, that velocity is the single most important factor in the site selection process, at the microhabitat level. In this regard, velocities may function as recognizable indicators of substrate suitability (Shirvell and Dungey 1983). Witzel and MacCrimmon (1983b) indicated that for brown trout populations in south-western Ontario, spawning site selection appeared to involve "a compounding of several environmental variables which are peculiar to brown trout". Based on available data it appears that a similar situation may exist in the Crowsnest River.

7.1.1.3 Rearing (Y-O-Y, Juveniles)

Boat electrofishing surveys were conducted in August, September, and October to determine rearing use of the Crowsnest River by young-of-the-year (y-o-y) and juvenile brown trout. This sampling technique proved to be very ineffective with respect to the capture of y-o-y. Only one individual was taken (fork length 111 mm); it was taken on 4 October in section ES2 (in RF/BG habitat).

Juveniles in the 200-280 mm size class (Age-1) contributed 57% to the total brown trout catch in the Crowsnest River. Over the duration of the study most juveniles were encountered in section ES2; however, a substantial number were encountered during the period 20-21 September in section CNP3 (part of general survey section ES3). Based on capture results for ES1, use of the lower Crowsnest River by this cohort was minimal during the August-October period.

Microhabitats utilized for feeding/holding by juveniles included moderate to high velocity runs (R2) and rapids (RA), particularly those complemented by boulder-gardens (i.e., R2/BG, RA/BG) (Table 7.5). Although some use of major holding areas (R1, P1) was detected, these areas were primarily occupied by the adult cohorts. As such, a noticeable degree of habitat separation between juvenile and adult cohorts was evident.

The increase in numbers of brown trout in the 200-280 mm size class in CNP3 during September may have been flow-related. Flows were higher during this period than in August or October which may have increased the suitability of the numerous RA/BG habitats in CNP3, precipitating a movement into the area.

Table 7.7 compares the availability (above and below FSL) of potentially suitable (moderate to high quality) habitat types for rearing. Based on the distribution of these types the reaches upstream of the FSL contain the majority (i.e., 59%) of the potentially suitable rearing habitat. Based on actual use, however, brown trout apparently utilize similar habitats in lower reaches (i.e., ES2) to a greater extent.

Table 7.7 Relative availability (hectares/km and percentage composition)[a] of feeding/holding and overwintering habitat, above and below FSL, for major sportfish species during low-flow periods, Crowsnest River.

Life Requisite Functions	Brown trout				Mountain whitefish				Rainbow trout			
	Above FSL		Below FSL		Above FSL		Below FSL		Above FSL		Below FSL	
	ha/km	%	ha/km	%	ha/km	%	ha/km	%	ha/km	%	ha/km	%
Rearing (y-o-y, juveniles)	0.59	59	0.32	41	1.06	32	1.71	68	0.87	46	0.80	54
Adult Feeding/Holding	0.20	40	0.23	60	1.08	54	0.70	46	0.20	40	0.23	60
Overwintering	0.58	51	0.43	49	0.58	51	0.43	49	0.58	51	0.41	49
Combined	**1.37**	**52**	**0.98**	**48**	**2.72**	**42**	**2.83**	**58**	**1.65**	**47**	**1.46**	**53**

[a] Values based on surface area contributions of high (5) and moderate-high (4) quality habitat types (Table 7.5).

7.1.1.4 Adult Feeding/Holding

Adult brown trout exhibited a localized distribution in the Crowsnest River during the August-October period, in response to the periodic occurrence of major holding areas. In August the major feeding/holding areas were situated in the middle portion of river (i.e., ES2). In contrast, few adults were taken in the upper (section ES3) and lower (ES1) portions of the river. Section ES3A was not sampled in August therefore the extent of use of this section in mid-summer is unknown. However, based on the limited distribution of high quality holding areas, overall use of this reach during this period is expected to be low. The distribution of adults in October was related more towards spawning areas than major feeding/holding habitats.

Several distinct size classes of adult brown trout were encountered in the Crowsnest River (see Section 7.1.1.7); they appear to correspond to the Age-2 to Age-5 age-classes. The larger individuals (400 mm+) exhibited frequent use of high quality run (R1) and pool (P1) habitat types, particularly when the two types were present in close association. Major R1P1 areas, which are identified in Figure 7.1, apparently provide excellent cover and food availability during even low-flow periods. Maximum depths in R1 and P1 areas exceeded 1.5 m (in some cases 2.0 m) when measured in late October; instream cover was abundant, consisting primarily of the following types: large boulders and bedrock fractures from adjacent unstable rock cliffs, submerged bedrock outcrops from rock cliffs, and depth/turbulence. In some locations (notably R1/P1 areas in lower portion of ES2) dense growths of aquatic macrophytes provided excellent instream cover. The majority of R1/P1 habitat types were situated on the outside perimeter of channel bends where interactions between channel flow and steep, rocky banks resulted in the formation of a deeply scoured channel with an abundance of boulder cover. Many of these high quality holding areas were closely associated with upstream situated riffle (RF) and shallow run (R3) habitats which likely provide a rich source of invertebrate drift.

Smaller adults and sub-adults (300-400 mm) were often encountered in R1/P1 habitat types as well. However, these individuals also utilized moderate quality runs (R2), particularly when they were located immediately below chutes. Other habitat types used to a lesser degree were rapids (RA) and rapids/boulder garden (RA/BG).

Table 7.7 compares the availability of potentially suitable feeding/holding areas for adult brown trout, above and below the FSL. Approximately 60% of the potentially available moderate to high quality habitat is situated below the FSL. When only highest quality habitat (R1, P1) is included, the distribution is as follows: 65% below FSL and 35% above FSL.

7.1.1.5 Overwintering

The locations of major overwintering areas for brown trout in the Crowsnest River are unknown. Sampling during the mid-summer, baseflow period indicated that adult brown trout were selecting R1/P1 habitat types. Although similar habitats likely would be used during the overwinter period due to presence of optimal depth, velocity, and cover characteristics in relation to other habitat types, this has not been established. Based on the apparent preference by brown trout for the middle reaches of the Crowsnest River (i.e., ES2) during the open water season, it is possible that the majority of overwintering may occur in this area. However, high quality holding areas in other reaches in the Crowsnest River (particularly ES1) or in the Oldman River also may be utilized. Juvenile brown trout were encountered in a wider diversity of habitats during the open water season and may be less restricted in terms of overwintering requirements (i.e., not forced to inhabit R1/P1 habitat). This being the case winter distribution of juveniles may be more widespread than for adults, although based on August-October distribution data, the middle and upper reaches might be favored. Table 7.7 compares the availability of potential overwintering habitat (moderate to high quality habitat type) above and below the FSL. The distribution of these types is fairly equitable (i.e., 51% above, 49% below). When only R1/P1 habitat is considered (more relevant to adults) the comparison is as follows: 35% above and 65% below FSL.

7.1.1.6 Movements

A total of 57 brown trout were tagged and released in the Crowsnest River during the August-October 1985 period. Of these, eight (14%) were recaptured by the study team. All were recaptured in the Crowsnest River, with five being taken within 100 m of their original capture location (Appendix C2). Two brown trout (both adults) were recaptured at their original tagging locations after 46 and 43 days-at-large. Only two individuals (both juveniles) exhibited net movements greater than 0.3 km. One individual, tagged and released at km 13.8 on 21 September was subsequently recaptured 9.7 km downstream on 4 October. The second individual was tagged and released at km 7.1 on 22 August and recaptured 5.5 km upstream on 20 September. The occurrence of an upstream movement by juveniles in September, followed by a corresponding downstream movement was supported by electrofishing CPUE data for CNP3 (i.e., larger numbers of brown trout juveniles in late September than in mid-August, reduced numbers by early October). Although recapture information is limited it appears that adults are relatively stationary (i.e., residing in or near specific R1/P1 cover types) except prior to spawning season. Juveniles appear to exhibit greater mobility (i.e., moving to alternate feeding areas possibly in response to changing flow patterns). The majority of these movements are apparently restricted to the Crowsnest River mainstem, although the capture of the occasional brown trout in the Oldman river suggests either the existence of random straying or a limited but defined partitioning of habitat resources between the two systems (e.g., seasonal use of Oldman River for summer feeding/holding or overwintering).

7.1.1.7 Life History Analysis

Length data were obtained from 75 brown trout in the August-October 1985 survey period. Individuals ranged in length (fork length) from 111 mm to 581 mm; however, approximately 57% of the sample was within the 200 mm to 280 mm size interval (Figure 7.2). Weights were recorded for 38 brown trout; the values ranged from 110 g to 2700 g.

Brown trout in the aged sample (N=35) ranged in age from 0 to 5 years; these age-classes correspond to the 1985-1980 year-classes (Figure 7.2). The population sample was dominated by Age-1 individuals (1984 year-class).

Brown trout in the Crowsnest River display a rapid rate of growth (extending over a relatively short life-span) (Table 7.8). This reflects the rich food source (e.g., high densities of pteronarcid stoneflies) and high quality habitat available in the Crowsnest River. Brown trout appear to exhibit a greater size than rainbow trout of corresponding age from the Crowsnest River. This may be partly due to the earlier post-hatch emergence of the brown trout which results in a substantially longer first growing season. Although data on age-at-maturity are limited it appears that brown trout spawn for the first time at Age-3.

The length-weight regression calculated for brown trout (sexes combined) from the Crowsnest River was:

$$W = (1.43 \times 10^{-5})\, L^{3.00} \quad (N=38,\ r^2=0.989)$$

The mean condition factor (k) for the weighed sample (N=38) was 1.4145.

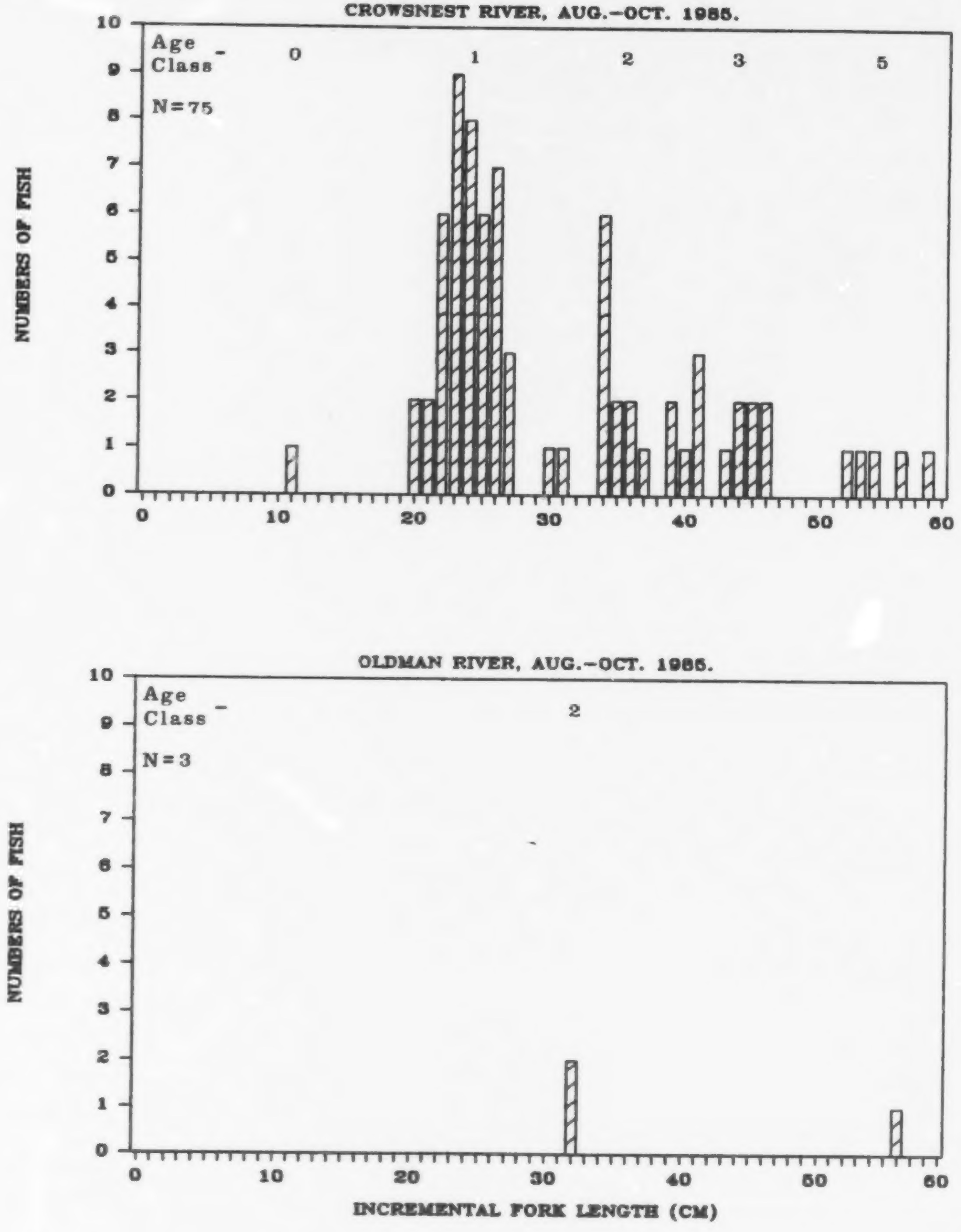


Figure 7.2 Length-frequency and age-class distribution for brown trout, Crowsnest River and Oldman River, August-October 1985.

Table 7.8 Age-length and age-weight relationships for brown trout (sexes combined) from the Crowsnest River, August-October 1985.

Age Class	Year Class	Fork Length (mm)				Weight (g)			
		N	$\bar{x}$	SD	95% CI	N	$\bar{x}$	SD	95% CI
0	1985	1	111	-	-	-	-	-	-
1	1984	19	248	26.9	235-261	15	220	94.1	168-272
2	1983	8	365	18.5	350-381	8	732	135.0	619-845
3	1982	5	448	7.8	438-458	5	1241	85.3	1135-1347
4	1981	-	-	-	-	-	-	-	-
5	1980	2	541	-	-	1	2440	-	-

7.1.2 MOUNTAIN WHITEFISH

7.1.2.1 Distribution and Relative Abundance

The Crowsnest River, both above and below Lundbreck Falls supports sizeable mountain whitefish populations (Fitch 1978). In 1985, mountain whitefish were the most abundant and widespread sportfish in the Crowsnest River study section. A total of 2500 mountain whitefish (90% of the total sportfish catch) were captured in general survey sections in the Crowsnest River (Table 7.1). A further 565 mountain whitefish were captured in population survey sections; they contributed 74% to the total sportfish catch from these sections. Mountain whitefish abundance was greatest in section ES3 (389/km; Tables 7.2 to 7.4). This abundance can be attributed to the presence of higher gradient habitat that is preferred by mountain whitefish for holding/feeding purposes. Mountain whitefish also were abundant in section ES1, likely due to the combined influences of suitable habitat in the reach and feeding related movements into the lower Crowsnest River from the Oldman River. The reduced numbers of mountain whitefish in sections ES2 and ES3A was likely due to lower habitat suitability with respect to juvenile and adult feeding.

On a seasonal basis, mountain whitefish abundance was highest in the August period; this applied to all survey sections (Tables 7.2 to 7.4). In areas supporting exceptionally high population densities, it was necessary to peridically interrupt the electrical current and suspend the netting procedure during sampling (i.e., to avoid mortalities from excessive shock and overstocked holding tubs). In these situations visual estimates of observed mountain whitefish were made in order to normalize CPUE values.

7.1.2.2 Spawning

Extent and Distribution

Mountain whitefish juveniles and adults exhibited a widespread distribution and were extremely numerous in the Crowsnest River during mid-August (Table 7.1). Sharply reduced catches in early October, however, indicated that a major outmigration (likely to spawning areas in the Oldman River) had occurred. Mountain whitefish CPUE values in October were approximately 85% lower in ES1 and 80% lower in ES2 and ES3 than in August (Tables 7.2 to 7.4). Although the length-distribution data suggests that the majority of outmigrants were juveniles and sub-adults, it appears that a substantial portion of the adult cohort had also vacated the system.

An egg recovery program to confirm the extent of spawning use by mountain whitefish and the location of spawning sites was conducted on 23 and 24 October. Information on the location of pre-spawning concentrations of adults (i.e., from early October electrofishing results) and spawning habitat utilization data (i.e., from previous field experience) were used to stratify egg sampling efforts. In most cases, where concentrations of adults (in gravid and ripe condition) had previously been located, spawning was confirmed by the recovery of eggs. A total of seven spawning sites were identified in the Crowsnest River (Figure 7.1). All but one (km 7.2) were situated in the upper reaches (km 10-16) above the FSL. Overall, spawning use of the Crowsnest River was very sporadic although three sections did contain the majority of confirmed spawning sites. These sections were as follows: km 10.8-11.4, km 13.8-14.5, and km 14.8+ (canyon section below Lundbreck Falls Recreation Area). Based on early October CPUE values (Tables 7.2-7.4), which indicated highest pre-spawning population densities in the upper Crowsnest River, and low egg densities recorded at egg collection sites at the lower Crowsnest River (Table 7.9) it appears that the majority of mountain whitefish spawning occurred in the upper Crowsnest River (particularly within section ES3). Mountain whitefish encountered in downstream electrofishing sections in early October (i.e., ES1) may have been in the process of leaving the system in favor of spawning areas situated in the Oldman River.

Chronology

The majority of adults examined on 4 and 5 October were in a gravid condition. Mountain whitefish eggs were first recovered from the substrate on 23 October. It is apparent then that spawning occurred during the intervening period (i.e., between 5-23 October). Maximum water temperatures on 4 and 5 October were 8.5°C (Appendix G). In the days following, the temperature in the Crowsnest River decreased rapidly, reaching lows between 0.5°C and 5°C (Appendix G). Temperatures within the 3-5°C range have been associated with peak mountain whitefish spawning activity (Thompson and Davies 1976; McLeod et al. 1978). Based on temperature data it appears that the peak of spawning in 1985 in the Crowsnest River may have occurred between 7-15 October. Mountain whitefish spawning in the Oldman River in 1982 was also thought to have occurred in the first two weeks of October (O'Neil et al. 1982).

Microhabitat Selection

Sites harbouring mountain whitefish eggs in the Crowsnest River were most frequently of the run-type, particularly the R2 category (Table 7.5). These areas

Table 7.9 Mountain whitefish egg densities at sample sites in the Oldman River Dam Study Area, October 1985.

River	Location (km)	Sample Date	No. of Samples	No. Eggs Recovered	Mean No. Eggs/Sample	Use Rating[a]
Crowsnest R.	14.8	23 Oct.	7	13	1.9	L-M
	14.5	23 Oct.	6	0	0.0	Nil
	14.1	23 Oct.	6	10	1.7	L-M
	13.8	23 Oct.	6	5	0.8	L
	11.4	23 Oct.	8	3	0.4	L
	11.0	23 Oct.	5	1	0.2	L
	10.8	23 Oct.	6	3	0.5	L
	8.6	24 Oct.	7	0	0.0	Nil
	7.2	24 Oct.	6	3	0.5	L
	6.6	24 Oct.	6	0	0.0	Nil
	6.1	24 Oct.	6	0	0.0	Nil
	5.9	24 Oct.	5	0	0.0	Nil
	3.3	24 Oct.	8	0	0.0	Nil
	2.1	24 Oct.	8	0	0.0	Nil
	1.3	24 Oct.	8	0	0.0	Nil
Overall	N=15		98	38	0.4	L
Oldman R.	350.9	28 Oct.	8	4	0.5	L
	348.3	28 Oct.	10	0	0.0	Nil
	347.0	28 Oct.	8	0	0.0	Nil
	344.8	28 Oct.	8	0	0.0	Nil
	344.3	28 Oct.	8	2	0.2	L
	342.6	28 Oct.	8	2	0.2	L
	337.7	21 Oct.	5	1	0.2	L
	335.6	21 Oct.	6	14	2.3	M-H
	333.4	21 Oct.	4	0	0.0	Nil
	331.7	21 Oct.	5	0	0.0	Nil
	*329.9	19 Oct.	7	0	0.0	Nil
	329.8	26 Oct.	8	0	0.0	Nil
	*329.6	19 Oct.	7	5	0.7	L
	*328.4	19 Oct.	7	0	0.0	Nil
	*327.9	19 Oct.	6	0	0.0	Nil
	*327.2	19 Oct.	6	0	0.0	Nil
	*326.7	19 Oct.	8	25	3.1	M
	*325.2	19 Oct.	6	0	0.0	Nil
	*324.4	19 Oct.	7	2	0.3	L
	*323.4	19 Oct.	9	30	3.3	M
	323.4	26 Oct.	18	0	0.0	Nil
	*322.1	19 Oct.	6	0	0.0	Nil
	*321.7	19 Oct.	6	100	16.7	H
	321.7	20 Oct.	12	9	0.8	L
	*320.7	16 Oct.	-[b]	-[b]	-[b]	M
	*320.3	16 Oct.	-[b]	-[b]	5.0	M
	*319.6	16 Oct.	14	16	1.1	L-M
	*318.7	16 Oct.	5	53	10.6	H
	*318.3	16 Oct.	8	10	1.3	L-M
Overall 1985	N=13		32	24	0.8	L
1982	N=14		101	241	2.4	L-M
Castle R.	23.2	27 Oct.	8	0	0.0	Nil
	18.5	27 Oct.	8	0	0.0	Nil
	16.4	27 Oct.	8	7	0.9	L
	15.0	27 Oct.	8	0	0.0	Nil
	13.0	22 Oct.	6	0	0.0	Nil
	9.3	22 Oct.	6	8	1.3	L-M
Overall	N=6		44	15	0.3	L

[a] L = low; M = moderate; H = high.

[b] excluded from calculations.

* - 1982 data.

provided greater depth and lower velocities than adjacent riffle or rapid sections. In addition, the substrate was less coarse and compacted in response to the lower velocities. Areas supporting greatest spawning use areas were often associated with a high quality holding habitat (e.g., R1, P1). Spawning areas were frequently located downstream of chutes (i.e., sections of confined channel and deep-fast flows).

In the present study, depths at successful egg collection sites generally ranged between 40-70 cm (Table 7.10). Earlier investigators determined spawning depths in the Oldman River between 55-100 cm+ with preferred depths in the 60-80 cm range (O'Neil et al. 1982).

Velocities at successful egg collection sites in the Crowsnest River were generally as follows: nose depth (10 cm above bottom) (60-70 cm$\cdot$s^{-1}), 0.6 of d (70-90 cm$\cdot$s^{-1}), and surface (80-100+ cm.s^{-1}) (Table 7.10). In the Oldman River, nose velocities (10 cm above bottom) in the 40-60 cm$\cdot$s^{-1} range were most common; surface velocities ranged between 70 and 110 cm$\cdot$s^{-1} (O'Neil et al. 1982).

Substrate at egg collection sites in the Crowsnest River were dominated by particles in Substrate Classes 6 and 7; these conform to the "very coarse gravel" (3.2-6.4 cm) and "small cobble" (6.4-12.8 cm) components (Table 7.10). Substrate embeddedness (i.e., degree of sediment filling of interstitial spaces) generally ranged between 25 and 50%; algal substrate cover ranged from 75-100%. Earlier investigators characterized the substrate at mountain whitefish spawning sites on the Oldman River as follows: 10-20 cm cobble (dominant component), 5-10 cm cobble (significant component); a preference for loosely compacted substrate with limited sedimentation of interstitial spaces was also indicated (O'Neil et al. 1982).

Microhabitat preferences may partially explain the limited use of the lower Crowsnest River for mountain whitefish spawning. Although quantitative data are absent it was visually apparent that substrates in suitable spawning settings (i.e., areas with preferred depth velocity characteristics) in the lower Crowsnest River were generally more heavily silted and more compacted than corresponding substrates in the upper Crowsnest River.

7.1.2.3 Rearing (Y-0-Y, Juveniles)

Only 10 y-o-y mountain whitefish were collected during the present study. Since mountain whitefish y-o-y are not sampled as efficiently with boat-electrofishing techniques (in comparison to juvenile and adult size classes), their status may have been underestimated. Despite this inherent gear selectivity it is our contention that first

Table 7.10 Physical habitat characteristics at confirmed mountain whitefish spawning sites in the Oldman River Dam Study Area, October 1985.

River	Location (km)	Mean Velocity ($cm \cdot s^{-1}$) ± SD[a] nose depth (10 cm above bottom)	0.6 of depth	Surface	Substrate Class[b] ($\bar{x}$ ± SD)	Mean Depth ± SD (cm)
Crowsnest R.	14.8	58.0 ± 22.6	70.0 ± 18.8	81.8 ± 14.4	6.0 ± 1.7	65.8 ± 14.2
	14.1	67.3 ± 31.9	87.3 ± 28.2	98.7 ± 23.9	6.8 ± 1.1	46.3 ± 10.1
	12.55	-	-	≈1.0-1.2[c]	≈7.5	37.5
	11.38	-	-	≈1.0-1.2	-	42.5
	10.98	-	-	-	-	-
	10.78	-	-	-	-	-
	7.19	-	81.0 ± 24.0	81.0 ± 12.7	-	46.0 ± 5.7
Oldman R.	350.9	-	-	≈0.7	6.7 ± 1.0	≈50.0
	344.3	-	-	≈1.0	5.5 ± 0.6	≈75.0
	342.6	-	-	≈1.0-1.2	6.4 ± 0.9	≈80.0
	3 Rivers Bridge	-	-	≈1.0-1.5	-	87.8 ± 9.3
	337.7	-	-	≈1.0	7.2 ± 1.1	≈50-70
	335.6	-	-	≈0.8	6.3 ± 1.1	≈90
Castle R.	16.4	-	-	≈1.0	7.2 ± 1.0	≈75
	9.3	-	-	≈0.7	-	≈70

[a] SD - standard deviation about the mean.
[b] for detailed explanation of substrate classes see Section 3.1.2.
[c] ≈ estimated.

year rearing in the Crowsnest River is limited. Of the y-o-y encountered the majority were captured in August, primarily in electrofishing section ES2. The concentration of y-o-y in ES2 is likely due to the relatively greater presence of suitable rearing areas. Of particular value in this regard is riffle-boulder garden (RF/BG) cover; also utilized, but to a lesser degree, were the following habitat types: riffle (RF), shallow run (R3), and shallow run/boulder garden (R3/BG) (Table 7.5).

Juveniles in the Age-1 cohort were well represented in the population, contributing approximately 25% to the total measured catch. The majority of these individuals were captured in the lower Crowsnest River (section ES1); they were present but less common in ES2. Very few juveniles were captured in the upper Crowsnest River (section ES3). The declining presence of juveniles in an upstream direction was likely due to a decreasing occurrence of shallow riffle (RF) and shallow-run (R3) habitat types. Section ES3, in particular, is dominated by deeper and higher velocity habitat types (e.g. RA, R2).

Table 7.7 compares the availability of feeding/holding habitat for juvenile mountain whitefish above and below FSL. As indicated, only 32% of the potentially suitable (i.e., moderate to high quality) area is situated upstream of the FSL.

7.1.2.4 Adult Feeding/Holding

Adult mountain whitefish exhibited a widespread distribution in the Crowsnest River during both the August and October surveys. Numbers were substantially lower in all sections during October, however, suggesting the occurrence of a prior outmigration to spawning and/or overwintering areas. The adult population was comprised of several distinct size-classes, representing age-classes 2 to 10.

Adult mountain whitefish utilized a variety of habitats for feeding/holding, although the preferred areas were most often RA/BG and R2/BG (Table 7.5). Also utilized extensively were: RA, R1, R2, and P1 habitats. The use of deeper and faster microhabitats by adults and shallower, lower velocity microhabitats by y-o-y and juveniles indicates considerable habitat separation between these cohorts.

Table 7.7 compares the availability of preferred feeding/holding habitat for mountain whitefish, above and below the FSL. As indicated, considerable habitat (i.e., 54% of total available) is situated above the level of flooding.

7.1.2.5 Overwintering

The overwintering habits of mountain whitefish in the Crowsnest River have not been investigated. However, a major outmigration was documented in October, suggesting that the majority of overwintering is in the Oldman River. Based on mountain whitefish distribution patterns in early October the majority of the remaining whitefish probably overwinter in the upper Crowsnest River (ES3), particularly in the canyon section near Lundbreck Falls Recreation Area. Habitat types most likely to be used by the remaining stock are moderate to high quality runs and pools, including R1, P1, R2, and R2/BG (Table 7.5). Table 7.7 describes the availability of potential overwintering habitats above and below FSL; as indicated 51% is situated above the FSL. The distribution of major holding areas (R1, P1) is illustrated in Figure 7.1.

7.1.2.6 Movements

A total of 99 mountain whitefish were tagged and released in the Crowsnest River in 1985 (Appendix C2). Of these, three (3%) were recaptured by study personnel. Tag recapture data and the electrofishing survey results indicate that a majority of the mountain whitefish in the Crowsnest River are seasonal residents, moving into the system (likely in the spring or early summer) from overwintering areas in the Oldman River. These individuals apparently spend the summer in the Crowsnest River engaged in feeding/rearing related activities before returning to the Oldman River (for spawning and overwintering). Three mountain whitefish tagged and released in August were recaptured within 0.5 km of their point of release in mid-September (Appendix C2). This suggests that in 1985, movements out of the system occurred after mid-September, likely in the late September to early October period. The pattern of mountain whitefish movements described for the Crowsnest River is similar to that documented for mountain whitefish populations in the Sheep River, Alberta (Thompson and Davies 1976).

7.1.2.7 Life History Analysis

Length data were obtained from 425 mountain whitefish in the August-October 1985 survey period. Individuals ranged in length (fork length) from 83 mm to 452 mm; however, the majority (approximately 91%) of the sample were within the 140 mm to 340 mm interval (Figure 7.3). Weights were recorded for 222 mountain whitefish; the values ranged from 20 g to 1300 g.

Mountain whitefish in the aged sample (N=62) ranged in age from 0 to 10 years; these age-classes correspond to the 1985-1975 year-classes (Figure 7.3). The population sample was dominated by Age-1 to Age-5 individuals (1984 to 1980 year-classes).

The age-length and age-weight relationships for mountain whitefish in the Crowsnest River are given in Table 7.11. A comparison of age length data between systems indicates that growth rates in the Crownest River are fairly comparable to those in the Oldman River (i.e., sample primarily made up of fish from the North Fork). In contrast, mountain whitefish in the Crowsnest and Oldman rivers exhibit noticeably faster growth than in the Castle River (Table 7.12). Age-at-maturity data suggest that a significant portion of the population would be capable of spawning as two-year-olds; all appear to be spawning on a regular basis by the age of three.

The length-weight regressions calculated for mountain whitefish (sexes combined) from the Crowsnest River was:

$$W = (1.30 \times 10^{-5})\ L^{3.00}\ (N=222, r^2=0.963).$$

The mean condition factor (k) for the weighed sample (N=222) was 1.3088.

7.1.3 RAINBOW TROUT

7.1.3.1 Distribution and Relative Abundance

Rainbow trout are well established in the Crowsnest River both above and below Lundbreck Falls; the most recent investigation of their status was by Fitch (1978). In the present study rainbow trout exhibited a widespread distribution in the lower Crowsnest River (below the falls) in all survey periods. A total of 248 rainbow trout (9% of the total sportfish catch) were captured from the four general survey sections (Table 7.1). Of this total, 108 (44%) were captured in section ES2. An additional 156 rainbow trout were captured in population survey sections, 128 (82%) of these from CNP3 in September (Table 7.1).

Highest rainbow trout densities were recorded in section ES2 (CPUE of 13.4/km) in August (Tables 7.2 to 7.4). With the exception of section ES3A, CPUE's for rainbow trout in all survey sections exceeded 8 fish/km.

Rainbow trout exhibited a slightly greater abundance in August electrofishing results (Tables 7.2 to 7.4). The reason(s) for the reduced capture rates in October are

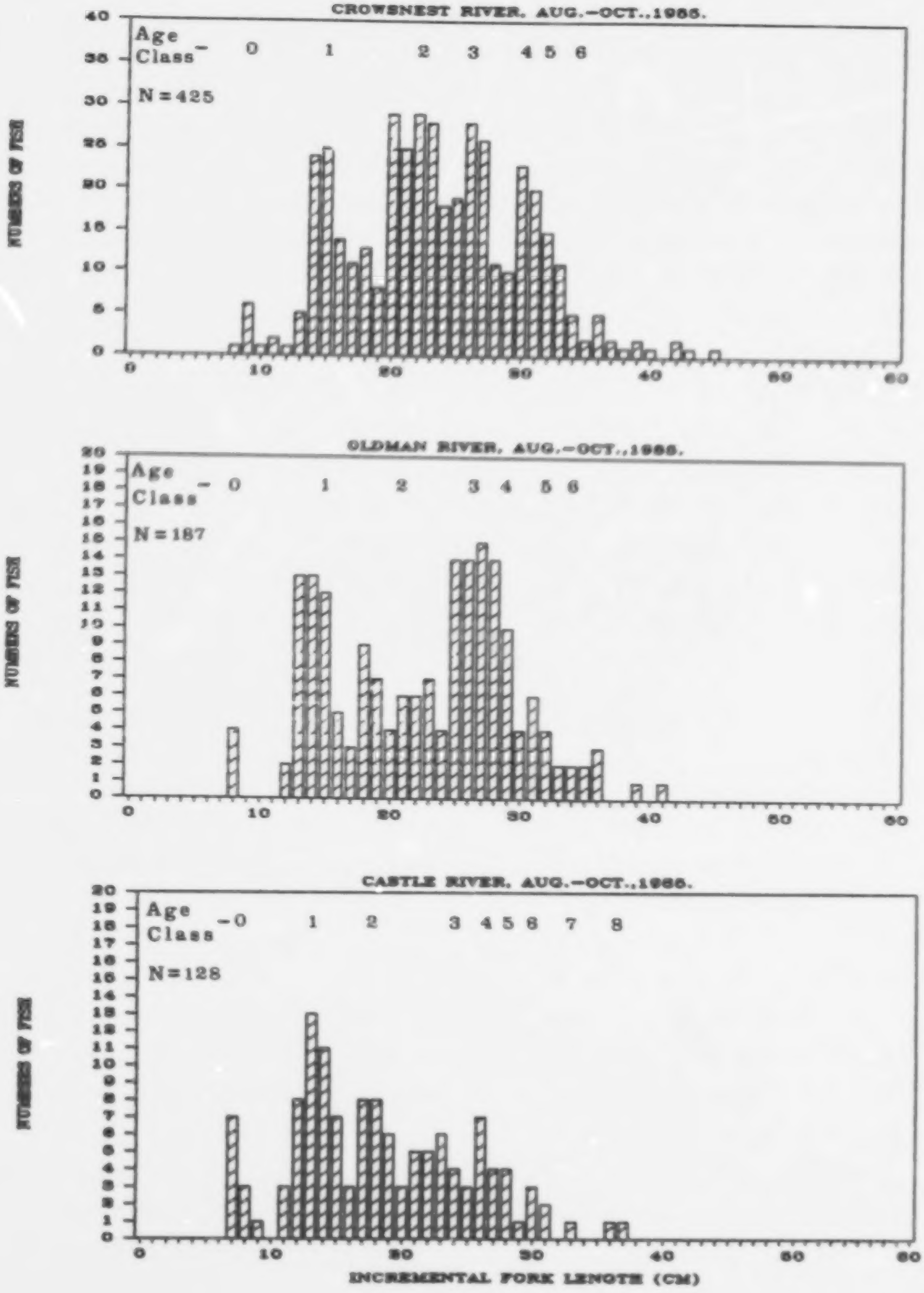


Figure 7.3 Length-frequency and age-class distribution for mountain whitefish, Crowsnest, Oldman, and Castle rivers, August-October 1985.

Table 7.11 Age-length and age-weight relationships for mountain whitefish (sexes combined) from the Crowsnest River, August-October 1985.

Age Class	Year Class	Fork Length (mm)				Weight (g)			
		N	$\bar{x}$	SD	95% CI	N	$\bar{x}$	SD	95% CI
0	1985	10	97	9.7	91-104	-	-	-	-
1	1984	8	151	11.1	142-161	4	48	17.1	20-75
2	1983	10	215	15.6	204-226	10	138	26.0	119-156
3	1982	11	264	16.6	253-275	10	259	62.1	214-303
4	1981	5	307	16.4	286-327	5	382	91.2	269-495
5	1980	9	328	8.8	321-335	9	456	61.5	408-503
6	1979	6	341	27.6	312-370	6	547	197.9	339-754
7	1978	1	363	-	-	1	600	-	-
8	1977	0	-	-	-	0	-	-	-
9	1976	1	424	-	-	1	910	-	-
10	1975	1	452	-	-	1	1300	-	-

Table 7.12 Age-length relationships for mountain whitefish (sexes combined) from the Oldman River Dam Study Area, August-October 1985.

Age Class	Year Class	Fork Length (mm)		
		N	$\bar{x}$	95% CI
Crowsnest River				
0	1985	10	97	91-104
1	1984	8	151	142-161
2	1983	10	215	204-226
3	1982	11	264	253-275
4	1981	5	307	286-327
5	1980	9	328	321-335
6	1979	6	341	312-370
7	1978	1	363	-
8	1977	0	-	-
9	1976	1	424	-
10	1975	1	452	-
Oldman River				
0	1985	4	83	79-87
1	1984	3	155	143-166
2	1983	2	212	-
3	1982	6	266	257-275
4	1981	9	290	283-296
5	1980	5	319	296-342
6	1979	2	344	-
7	1978	1	357	-
8	1977	1	397	-
Castle River				
0	1985	11	79	75-83
1	1984	2	130	-
2	1983	6	174	162-185
3	1982	7	254	236-271
4	1981	4	274	238-310
5	1980	2	280	-
6	1979	2	305	-
7	1978	2	339	-
8	1977	1	372	-

unclear, although they may have been due to: 1) differences in capture efficiency between seasons, 2) lower numbers of fish in the system due to movements out of the system (i.e., for overwintering), or 3) decreased population size due to angler harvest (see Section 7.1.5.3).

7.1.3.2 Spawning

The spawning distribution and habits of rainbow trout in the Crowsnest River are not well documented. I.E.C. Beak (1985b) conducted electrofishing on accessible portions of the Crowsnest River on 5 May 1985 to relate the early spring distribution of rainbow trout to spawning activity. Areas with rainbow trout concentrations were noted, however, specific spawning areas were not identified.

7.1.3.3 Rearing (Y-O-Y, Juveniles)

Very few (N=8) y-o-y rainbow trout were collected in the Crowsnest River during the present study; all were taken in the fall (20 September-5 October). The low numbers of y-o-y (i.e., approximately 2% of total measured sample) likely reflects the inefficiency of boat-electrofishing in capturing this age cohort (i.e., due to cover selection). Of the y-o-y encountered, six were taken in the reaches above the FSL (sections ES3, ES3A) and two were taken below (section ES2). None were taken in the lowermost survey reach (section ES1).

Juveniles in the 150-250 mm size range (largely Age-1) contributed approximately 30% to the total measured sample. These individuals were distributed throughout the study area, but were most abundant in the upper Crowsnest River (i.e., section ES3). They were most numerous in RF, R3, and RA habitat types, particularly when these habitats were complemented by boulder garden (BG) cover. There was evidence of habitat separation between the juvenile and adult cohorts, the latter preferring moderate-to-high quality Runs (R1, R2) and Pools (P1, P2).

Table 7.5 identifies the preferred habitats for feeding/holding by y-o-y and juveniles based on available data. The availability of the moderate-to-high quality habitats above and below the FSL is presented in Table 7.7. Approximately 46% of the potentially available preferred habitat types is situated upstream of the reservoir FSL

7.1.3.4 Adult Feeding/Holding

Adult and large sub-adult rainbow trout (approximately 275 mm+, Age-2 to 5) were recorded throughout the Crowsnest River during the August-October period. They exhibited a localized distribution according to the periodic availability of preferred feeding/holding habitats. The majority of the adult catch was taken from the uppermost electrofishing section (ES3) although ES2 was extremely productive as well. Fewer adults were captured in the lowermost section (ES1) during August although localized sites were heavily utilized. Densities in October were comparable in sections ES1-ES3.

Adult rainbow trout exhibited a strong selection for specific habitat types during the August-October period (Table 7.5). Larger adults (400 mm+) were almost exclusively associated with high quality Run (R1) and Pool (P1) habitats. These microhabitats were deep (i.e., maximum depth greater than 1.5 m, occasionally 2.0 m+), provided excellent cover (boulder/bedrock fractures, turbulence) and were in close association with high quality food producing areas (i.e., invertebrate drift from RF,R3 habitat types). Major holding areas (R1/P1) were generally situated on the outside perimeter of abrupt channel bends; this type of situation provided the necessary blend of channel hydraulics (i.e., bed and bank scour) and bank conditions (i.e., steep bedrock cliffs) to produce excellent feeding and cover conditions. Figure 7.1 illustrates the distribution of major R1/P1 areas in the Crowsnest River. Sub-adults and smaller adults (250 to 400 mm) also showed a strong selection for R1/P1 habitat types; however, they also made considerable use of other suitable habitat types, particularly R2/BG areas (Table 7.5).

The availability of preferred habitats (i.e., moderate to high quality habitats) for adult feeding/holding both above and below FSL is provided in Table 7.7. Approximately 60% of the potentially available habitat is situated below the reservoir FSL. When only high quality habitat types (R1, P1) are considered, the distribution is as follows: 35% above FSL and 65% below FSL.

7.1.3.5 Overwintering

The overwintering habits of rainbow trout in the Crowsnest River have not been investigated. However, it is assumed that only the deeper and higher quality holding areas (i.e., R1, P1, R2, R2/BG) would be suitable for this purpose particularly with respect to adults (Table 7.5). This being the case, approximately 49% of the potentially available preferred habitat (i.e., moderate to high quality areas) is situated below the FSL (Table 7.7). When only highest quality holding areas (i.e., R1, P1) are considered the situation is as follows: 35% above FSL and 65% below FSL.

7.1.3.6 Movements

A total of 263 rainbow trout were tagged and released in the Crowsnest River in the present study. Of these, 21 (8%) were recaptured, 14 by the study team and seven by anglers (Appendix C2). Recapture locations were available for 20 of these individuals. The documented movements were as follows: 30% exhibited a net downstream movement, 30% a net upstream movement and 40% exhibited no net movement between tagging and subsequent recapture. The longest downstream movement was 24.1 km. In this case a rainbow trout tagged in the lower Crowsnest River was recaptured 14 days later by an angler at the Summerview Bridge on the Oldman River (Appendix C2). The preceding data suggests that some intersystem movements may be undertaken by this species; however, the recapture of most individuals within the Crowsnest River indicates the majority of the population is resident in the system, at least during the summer-fall period.

7.1.3.7 Life History Analysis

Length data were obtained from 390 rainbow trout in the August-October survey period. Individuals ranged in length (fork length) from 63 mm to 555 mm; however, approximately 74% were within the 200 mm to 400 mm interval (Figure 7.4). Weights were recorded for 224 rainbow trout; the values ranged from 20 g to 2460 g.

Rainbow trout in the aged sample (N=109) ranged in age from 0 to 4 years; these age-classes correspond to the 1985-1981 year-classes (Figure 7.4). Individuals which were assumed to be from the Age-6 age-class were also encountered but were not aged (i.e., due to poor quality ageing materials). The population sample was dominated by Age-1 to Age-3 individuals (1984 to 1982 year-classes).

Rainbow trout in the Crowsnest River display a rapid growth rate and a relatively short life-span. The age-length and age-weight relationships are provided in Table 7.13. Rainbow trout in the Crowsnest River exhibit substantially greater growth than their counterparts in the Oldman River (North Fork) and Castle River (Table 7.14). Although age-at-maturity data is limited it appears that the majority of rainbow trout commence spawning as three-year-olds.

The length-weight regression calculated for rainbow trout (sexes combined) from the Crowsnest River was:

$$W = (0.72 \times 10^{-5})\ L^{3.11}\ (N=223,\ r^2=0.9762)$$

The mean condition factor (k) for the weighed sample (N=223) was 1.3820.

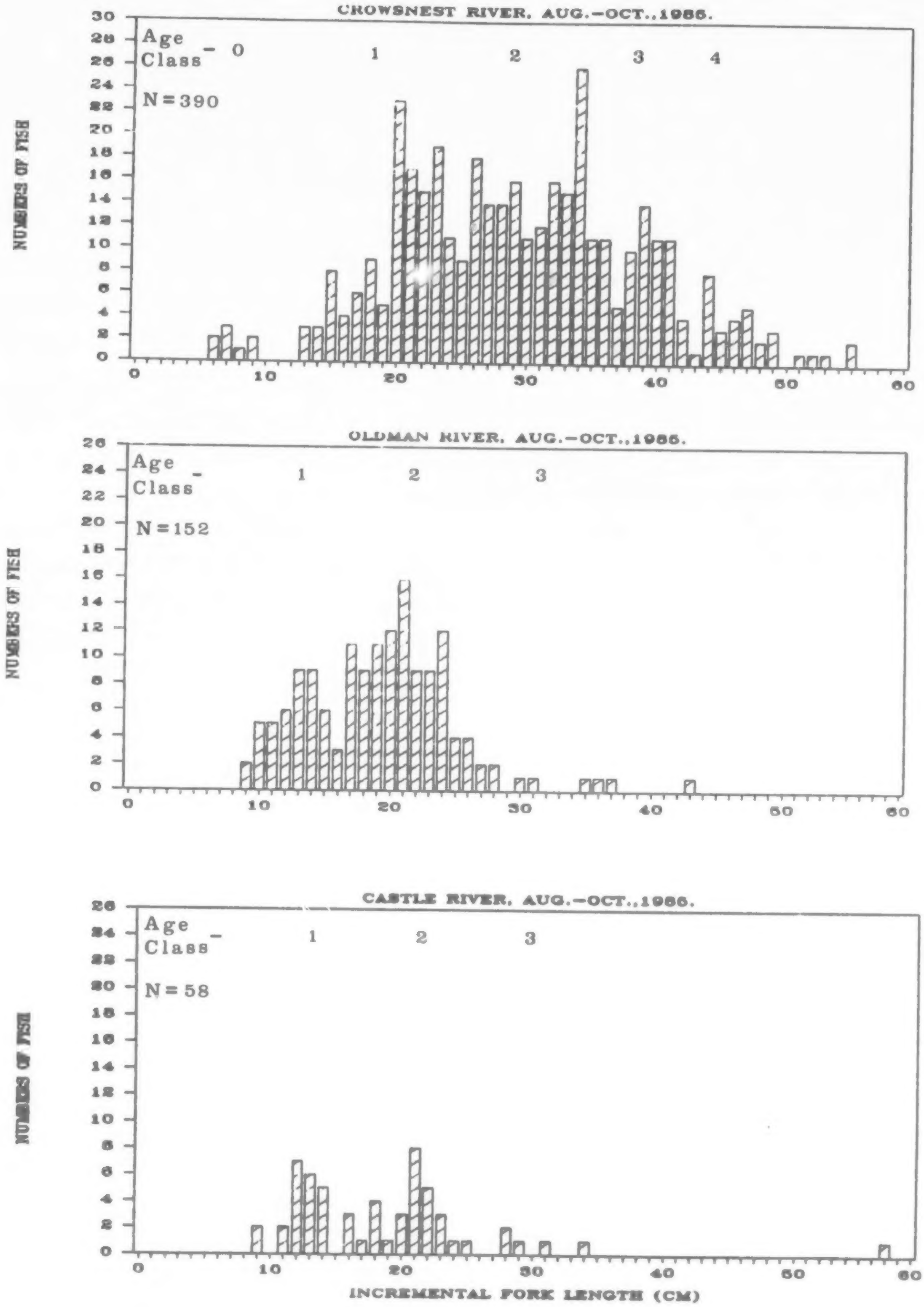


Figure 7.4 Length-frequency and age-class distribution for rainbow trout, Crowsnest, Oldman, and Castle rivers, August-October 1985.

Table 7.13 Age-length and age-weight relationships for rainbow trout (sexes combined) from the Crowsnest River, August-October 1985.

Age Class	Year Class	Fork Length (mm)				Weight (g)			
		N	$\bar{x}$	SD	95% CI	N	$\bar{x}$	SD	95% CI
0	1985	8	78	10.9	69-87	-	-	-	-
1	1984	25	183	31.0	170-196	23	88	57.8	63-113
2	1983	40	296	38.4	283-308	39	392	157.3	341-443
3	1982	26	378	27.6	367-389	24	754	156.7	688-820
4	1981	10	458	24.7	440-485	9	1372	[illegible]	950-1549

Table 7.14 Age-length relationships for rainbow trout (sexes combined) from the Oldman River Dam Study Area, August-October 1985.

Age Class	Year Class	Fork Length (mm) N	$\bar{x}$	95% CI
Crowsnest River				
0	1985	8	78	69-87
1	1984	25	183	170-196
2	1983	40	296	283-308
3	1982	26	378	367-389
4	1981	10	458	440-475
Oldman River				
1	1984	25	134	123-144
2	1983	28	221	209-232
3	1982	6	316	273-360
4	1981	1	432	-
Castle River				
1	1984	9	132	120-143
2	1983	20	209	197-221
3	1982	5	298	257-339

7.1.4 INCIDENTAL SPECIES

Bull trout and cutthroat trout were recorded infrequently in the Crowsnest River in 1985. Three bull trout were captured in the lower survey sections (ES1 and ES2); two were juveniles (202 mm, 80 g and 196 mm, 80 g) and one was an adult (459 mm). These individuals were all captured in the early October survey period. In addition, several (N=4) were recorded in angler catches at sites CN3, CN4, CN6, and CN7. Bull trout apparently exhibit a sporadic distribution in the Crowsnest River and occur in low numbers.

Cutthroat trout and rainbow x cutthroat hybrids have been recorded from the Crowsnest River above Lundbreck Falls (Fitch 1978). In the present study, only one cutthroat trout (286 mm, 1744 g) was captured (in section ES2); two others were reported as captured by anglers (at CN6).

7.1.5 SPORTFISH POPULATION ESTIMATES

The population estimates for the three major sportfish (i.e., brown trout, mountain whitefish, and rainbow trout) in the lower 15.4 km of the Crowsnest River are given in Table 7.15. These estimates were derived for each species using the ratio of population estimates and CPUE's (determined in population section CNP3) to the corresponding CPUE's recorded in the general electrofishing sections during each of the August and October periods. A more detailed description of the estimation methods used to determine population numbers in CNP3, and the extrapolation procedure employed to calculate population estimates for the general electrofishing sections, are provided in Appendix E1.

Population estimates generally apply to "catchable" individuals (i.e., greater than 150 mm in length for mountain whitefish and 200 mm in length for trout species). Smaller individuals (i.e., young-of-the-year and smaller juveniles) of these species are less susceptible to capture by electrofishing due to 1) the reduced ability of the electric field to attract and hold these individuals (electrofishing efficiency being a function of body surface area), 2) the greater occurrence of juveniles in higher gradient habitat types (i.e., boulder-gardens, rapids, plunge pools, etc) that present increased difficulties in observing and netting the fish, and 3) a high association with cover (e.g., in boulder/cobble interstices, undercut banks, submerged debris, etc.) particularly for juvenile trout. Due to the low representation of smaller size-classes in the catch the figures given in Table 7.11 underestimate the total population size of sportfish in the

Table 7.15 Estimated size of sportfish populations in the lower 15.4 km of the Crowsnest River, August to October 1985.

Section	Date	Brown trout		Mountain whitefish		Rainbow trout	
		CPUE[a]	N (CI)[b]	CPUE	N (CI)	CPUE	N (CI)
CNP3[c]	20-24 Sep.	6.25	90 (60-170)	96.87	2800 (1400-3400)	24.62	860 (570-1730)
ES1	19 Aug.	0.24	15	200.98[d]	23 790	8.78	1 190
ES2	22 Aug.	3.40	250	37.20[d]	5 370	13.40	2 210
ES3	20 Aug.	1.07	40	389.29[d]	31 470	11.79	1 090
	August Total		305		60 630		4 490
ES1	4 Oct.	0.49	30	33.17[e]	3 930	8.54	1 160
ES2	4 Oct.	2.20	160	7.20[e]	1 040	8.20	1 350
ES3A[f]	5 Oct.	1.74	60	2.60[e]	170	3.91	300
ES3	5 Oct.	1.79	70	79.29[e]	6 410	9.64	890
	October Total		320		11 550		3 700

[a] catch per kilometre; excluding observed fish unless otherwise noted.
[b] N = population estimate (CI = 95% confidence intervals); the extrapolation procedure is given in Appendix E1.
[c] Population section; sampling consisted of 3 marking runs (20 and 21 Sep.) and 1 recapture run (24 Sep.).
[d] includes 50% of the 1221, 128, and 1925 mountain whitefish observed in Sections ES1, ES2, and ES3 respectively in August.
[e] includes 50% of the 44, 30, 6, and 276 mountain whitefish observed in Sections ES1, ES2, ES3A and ES3 respectively in October.
[f] not sampled in August.

Crowsnest River. The degree of this underestimation is uncertain; however, assuming a "normal" population distribution, the y-o-y and smaller juveniles could contribute the majority to the total population. Avery (1983) found that for brown trout populations in two Wisconsin streams, y-o-y and yearlings comprised more than 80% of the population.

7.1.5.1 Brown Trout

The lower 15.4 km of the Crowsnest River supports a small but well-established population of brown trout. Estimates of between 305 and 320 "catchable" brown trout (i.e., greater than 200 mm in length) were derived for the August and October periods respectively (Table 7.15). The similar estimates obtained for both survey months suggests the population is resident in the area over the summer and fall period. The estimated population density of brown trout in the 15.4 km of the lower Crownest River (i.e., below Lundbreck Falls) was approximately 20 brown trout/km; the majority of the population resided in section ES2 in both surveyed months.

The low representation of y-o-y and smaller juveniles results in an underestimation of the actual brown trout population. An additional source of underestimation for both juvenile and "catchable" cohorts was the absence of sampling data (in both survey periods) from the 0.7 km section from Lundbreck Falls downstream to the start of section ES3 and from section ES3A in August. Creel survey results indicate that brown trout do frequent this reach. It is suspected that brown trout in this section were largely juveniles due to their high use of this type of habitat, and their ease of capture by anglers relative to adults. The low numbers of redds and brown trout spawners (Section 7.1.1.2) and the low incidence of brown trout in the electrofishing catch and angler creel, support the contention that the "catchable" brown trout population in the Crowsnest River is relatively small.

7.1.5.2 Mountain Whitefish

The Crowsnest River below Lundbreck Falls supports a very large population of mountain whitefish (Table 7.15). The estimate for the August period was approximately 60 600 mountain whitefish; the average density was 3900/km. In October an estimated 11 600 mountain whitefish (750/km) were present in the system indicating that population levels had decreased substantially. In both monthly sample periods greatest numbers of mountain whitefish were present in section ES3. High use of this section likely reflects a species preference for high gradient habitats but also may be due to the presence of Lundbreck Falls (i.e., concentrations below blockage). The population estimates for mountain whitefish are subject to the same sources of underestimation described for brown trout, although to a much lesser degree (Section 7.1.5.1). The majority of mountain whitefish in the Crowsnest River were adults and larger juveniles, cohorts that are very susceptible to capture by electrofishing. The major source of underestimation would be the absence of sampling (in both sample periods) from the 0.7 km section immediately below Lundbreck Falls (an area with highly suitable mountain whitefish habitat) and the absence of sampling from section ES3A in August.

7.1.5.3 Rainbow Trout

The estimated population of "catchable" rainbow trout (greater than 200 mm) in the Crowsnest River ranged from approximately 4500 to 3700 fish during the August and October periods, respectively (Table 7.15). Based on these estimates the average population density (in the lower 15.4 km of the Crowsnest River) ranged from 290 rainbow trout/km in August to 240/km in October. Estimates for all individual sample sections were higher in August than in October. The total August value is likely underestimated due to the absence of data from section ES3A. Assuming rainbow trout numbers in ES3A in August were similar to October estimates at this site, the total population in August would be approximately 4800 "catchable" rainbow trout. The difference in estimates between sample months (Table 7.15) may be attributed to 1) movements out of the system related to overwintering requirements, or 2) harvest by anglers. There is a suggestion that some rainbow trout may move out of the Crowsnest River into the Oldman River in the fall period, however, supportive data is very limited. The difference between the August (4800) and October (3700) population estimates (i.e., approximately 1100 rainbow trout) closely approximates the estimated 1010 rainbow trout captured by anglers in the corresponding section of the Crowsnest River (i.e., CN1 to CN5) during the September to October period (see Section 8.2.2; Table 8.7).

The estimates of the rainbow trout population likely underestimate the actual population in the Crowsnest River. The reasons for this underestimation are similar to those discussed previously for the brown trout population estimates (Section 7.1.5.1). Given these sources of underestimation and an absence of any defined sources of overestimation, the actual rainbow trout population could be substantially higher.

7.2 OLDMAN RIVER

7.2.1 BROWN TROUT

Three adult brown trout were captured in the Oldman River during the present study (Table 7.16). Two individuals (fork lengths of 321 mm and 323 mm) were recorded in the lower portion of the North Fork (i.e., lower 4.5 km) on 18 August. A third individual, a large (561 mm) spent male was recorded in Section ES1A between the Crowsnest River confluence and the Cowley Bridge on 19 October. All were directly associated with high quality feeding/holding areas (i.e., R1 or P1 habitat types) at the time of capture. It is assumed that the spent male had recently moved into the Oldman River after spawning in the Crowsnest River. Based on spawning habitat preferences it is unlikely that this individual spawned in this section of the Oldman River.

Local anglers indicated that brown trout are occasionally captured in the Oldman River, particularly in the section between the Crowsnest River confluence and the Cowley Bridge. A brown trout was recorded in the creel survey at Summerview Bridge.

Based on the low number of brown trout recorded in the Oldman River it appears that the stock consists of strays from the Crowsnest River (i.e., for feeding and possibly overwintering purposes). A resident brown trout population in the Oldman River appears unlikely.

7.2.2 MOUNTAIN WHITEFISH

7.2.2.1 Distribution and Abundance

Mountain whitefish were present in all Oldman River study sections during each of the sampled periods (Table 7.16). A total of 197 mountain whitefish (55% of the total sportfish catch) were recorded from survey sections in the Oldman River; of these, 100 (51%) were captured in section ES2 in October.

In the north fork of the Oldman River, the greatest density of mountain whitefish (i.e., 15.62 fish/km) was recorded in section ES2 in August (Table 7.16). Mountain whitefish capture rates in ES1 during the same time period were considerably lower, possibly indicating the habitat in section ES2 was more suitable for summer feeding and rearing functions. Seasonal CPUE values for mountain whitefish did not differ appreciably in section ES1, the only general survey section sampled in each of the monthly survey periods (Table 7.16). The high densities (i.e., 27.50 fish/km) of mountain whitefish in

Table 7.16 Summary of boat electrofishing catch and CPUE (catch/km and catch/min) for the three major sportfish species in general survey sections ES1A, ES1, and ES2 and population section ORP1 on the Oldman River, August to October 1985.

							Catch and CPUE (catch/km and catch/min)								
							Brown trout			Mountain whitefish			Rainbow trout		
Section	Location (km)	Date	Sample Interval (h)	Discharge (m^3/s)	Sample Effort (min)	Sample Distance (km)	No. Caught	Catch/ km	Catch/ min	No. Caught	Catch/ km	Catch/ min	No. Caught	Catch/ km	Catch/ min
ES1	339.0-331.8	18 Aug.	1315-1930	5.29	103.6	7.2	2	0.28	0.02	38	5.28	0.37	66	9.17	0.64
Stop #1	337.2				17.8	1.8				4	2.22	0.22	11	6.11	0.62
#2	335.9				24.4	1.3	1	0.77	0.04	11	8.46	0.45	17	13.08	0.70
#3	334.2				29.7	1.7				4	2.35	0.14	5	2.94	0.17
#4	333.3				12.1	0.9				10	11.11	0.83	12	13.33	0.99
#5	331.8				19.6	1.5	1	0.67	0.05	9	6.00	0.46	21	14.00	1.07
ES1	339.0-331.7	19 Oct.	1100-1515	9.50	66.9	7.3				34	4.66	0.51	18	2.47	0.27
Stop #1	337.8				13.0	1.2				3	2.50	0.23			
#2	335.9				19.0	1.9				12	6.32	0.63	7	3.68	0.37
#3	334.1				14.3	1.8				2	1.11	0.14	4	2.22	0.28
#4	333.4				8.0	0.7				2	2.86	0.25			
#5	332.0				8.9	1.4				11	7.86	1.24	7	5.00	0.79
#6	331.7				3.7	0.3				4	13.33	1.08			
ES1A	331.5-330.7	19 Oct.	1515-1545	13.9	6.6	0.8	1	1.25	0.15	22	27.50	3.33	1	1.25	0.15
ES2	351.4-345.0	21 Aug.	1315-1700	4.93	77.2	6.4				100	15.62	1.30	68	10.62	0.88
Stop #1	350.9				10.6	0.5				11	22.00	1.04	5	10.00	0.47
#2	349.7				12.7	1.2				32	26.67	2.51	6	5.00	0.47
#3	348.0				16.7	1.7				31	18.24	1.86	21	12.35	1.26
#4	346.3				21.4	1.7				11	6.47	0.51	17	10.00	0.79
#5	345.0				15.8	1.3				15	11.54	0.95	19	14.62	1.20
ORP1	327.1-325.0	3 Oct.		9.18	36.6	4.2				3	0.71	0.08	4	0.95	0.11
Run #1	327.1-325.0	3 Oct.	1115-1225		18.8	2.1				1	0.48	0.05	4	1.90	0.22
#2	327.1-325.0	3 Oct.	1410-1510		17.8	2.1				2	0.95	0.11			

Section ES1A in October likely reflects a concentration below the Crowsnest River confluence for feeding purposes.

7.2.2.2 Spawning

Extent and Distribution

Mountain whitefish, including adult age-classes (Age-3 to 8) exhibited a widespread distribution in the mainstem Oldman River during the August-October survey period. Electrofishing surveys were conducted during October 1985 to determine the distribution and relative abundance of adults during the spawning season (Table 7.16). Sampling was restricted to the lower sampling sections: ES1, ES1A, and a section situated in the vicinity of the Castle River confluence (ORP1) (Figure 3.2). By 19 October, it was evident that spawning was nearing completion (i.e., based on capture of spent individuals in ES1). The distribution of adult spawners in ES1 was sporadic and overall abundance was low, suggesting limited spawning use of this reach. Although the degree of outmigration prior to the survey is unknown, a concentration of spent adults was identified in holding areas in the vicinity of the Crowsnest River confluence. These individuals could have originated from the upper Oldman River; alternatively they may have entered from the Crowsnest River. Electrofishing was not conducted in the upper sampling reach (ES2) of the North Fork during October due to low flows (i.e., resulting in difficult navigation with sampling gear). August electrofishing results, however, indicated the presence of larger numbers of adults in this section than in ES1. Very few adults were present in section ORP1 (above Castle River confluence) on 3 October, at which time any pre-spawning concentrations would have been detected. Sampling was not undertaken in the lower portion of the Oldman River study area since considerable spawning data was already available (O'Neil et al. 1982).

Egg collection surveys were conducted during the period 20-28 October to delineate mountain whitefish spawning sites. Sampling was concentrated in areas where groups of adults had been encountered during the earlier electrofishing survey and in areas displaying preferred spawning characteristics. Spawning distribution data for the section between Cowley and the damsite (and downstream of the dam) was provided by O'Neil et al. (1982). The collective sampling results are presented in Table 7.9.

A total of 15 mountain whitefish spawning sites have been confirmed to date; of these, five are situated in the north fork and 10 are located between the Crowsnest

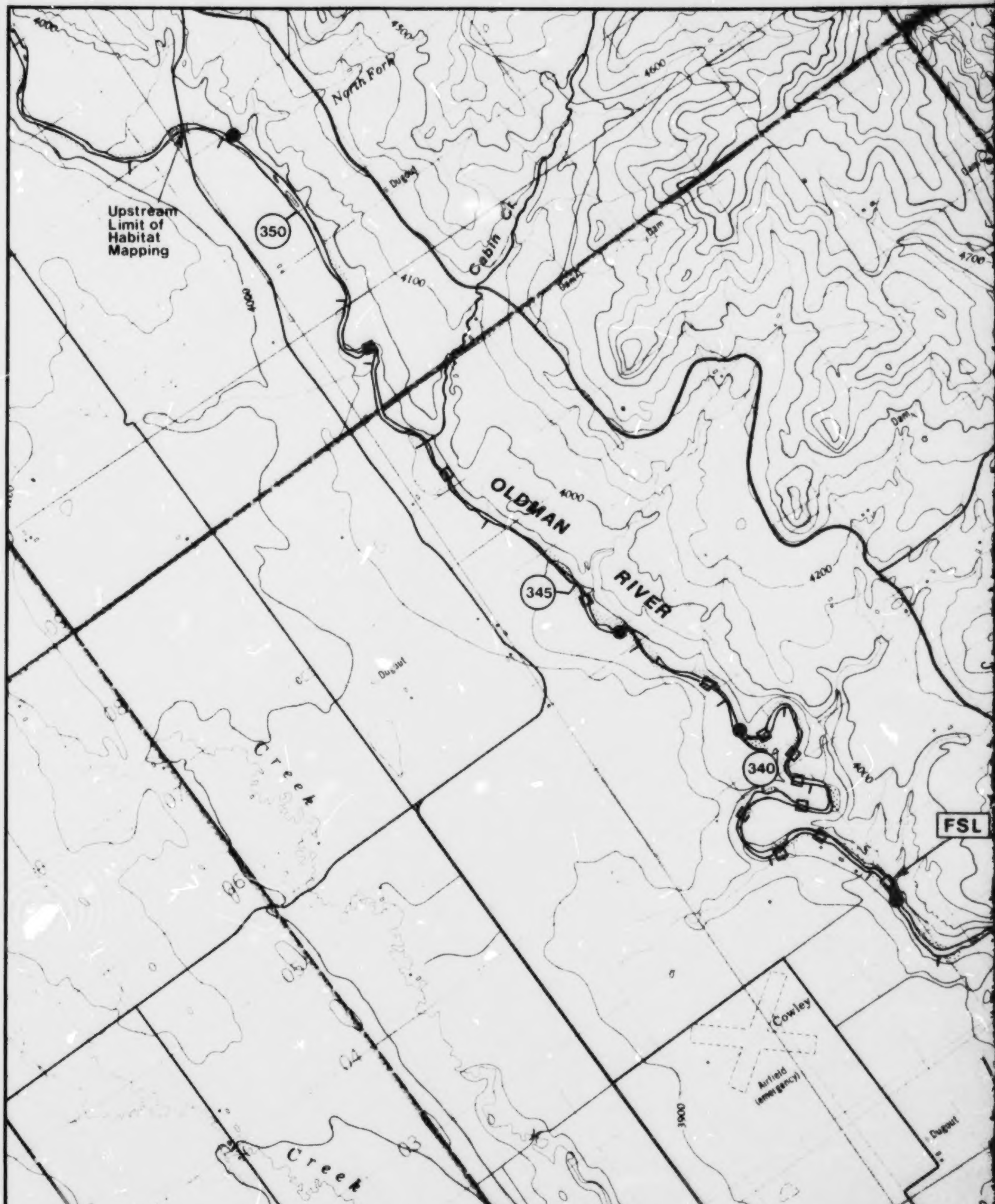
River confluence and the damsite (Figure 7.5). In relation to the reservoir FSL, three are situated above and 12 below FSL. Suitable spawning habitat is restricted in the section above the FSL; this is reflected in the sporadic distribution of the successful egg collection sites (Figure 7.5) and low egg densities (Table 7.9). Mountain whitefish spawning is apparently rather limited in the lower section of the north fork (i.e., below the FSL), the exception being a moderate to high quality site situated at km 335.6. Between the Crowsnest River confluence and the Castle River, spawning activity is low, likely due largely to substrate and habitat type limitations. Below the Castle River to near Tennessee Creek, a moderate level of spawning activity was recorded. Six of the 15 successful egg collection sites are located between Tennessee Creek and the damsite, a distance of approximately 5 km. This section evidently provides the highest quality spawning habitat and is the most heavily used of any reach in the Oldman River study section. O'Neil et al. (1982) also identified important spawning reaches downstream of the damsite (i.e., to vicinity of Brocket).

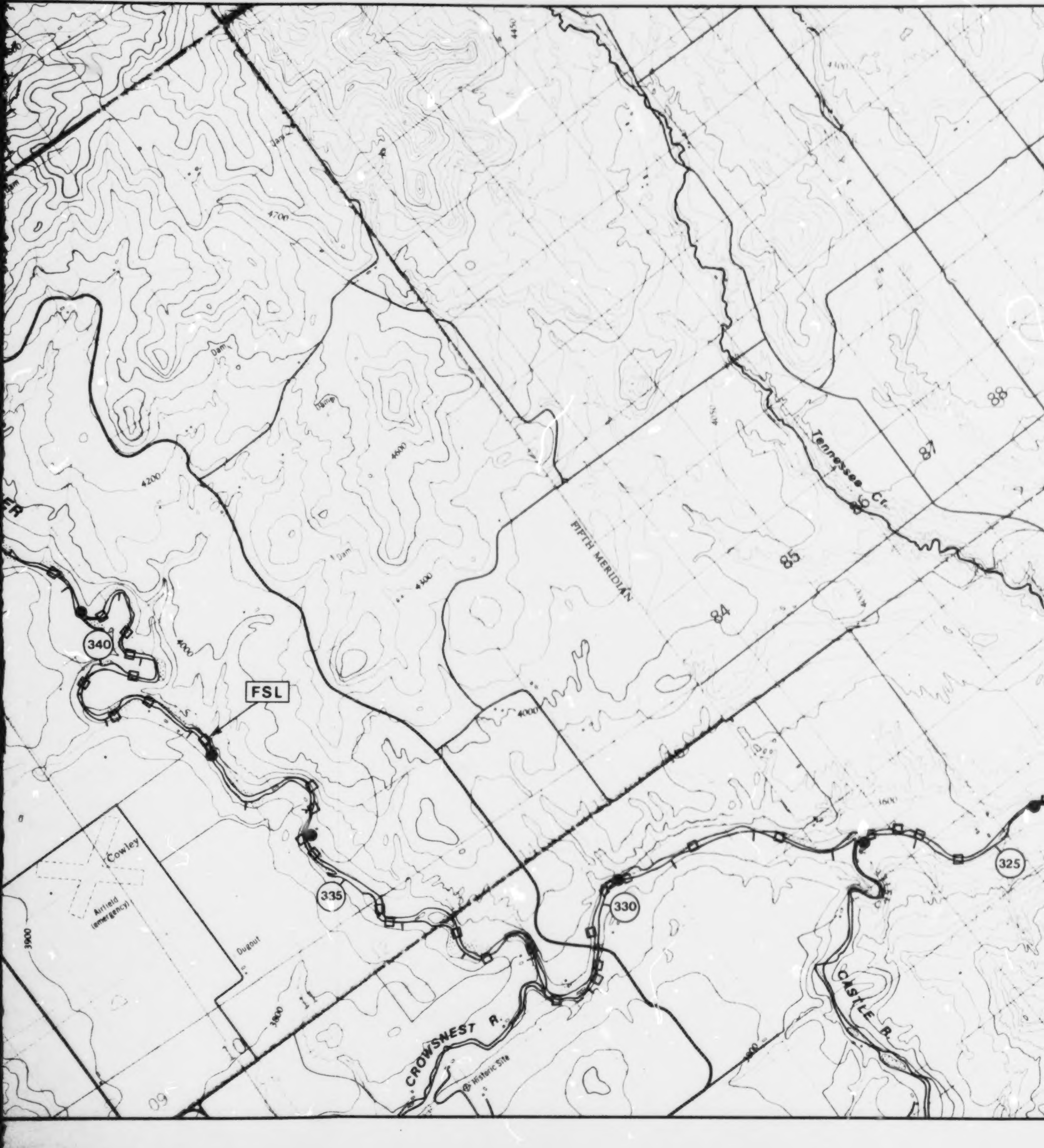
Chronology

Based on gonad maturation (i.e., collection of gravid, ripe, spent adults) water temperature, and egg collection data, it appears that the peak of spawning occurred during the period 7-15 October, with minor spawning activity taking place prior to and following this period. Recorded water temperatures in this interval ranged between 1.0-4.0°C, which are within the preferred range for mountain whitefish spawning (Thompson and Davies 1976; McLeod et al. 1978). O'Neil et al. (1982) determined that spawning in the Oldman River also occurred in the first two weeks of October in 1982.

Microhabitat Selection

Mountain whitefish egg collection sites in the Oldman River were generally situated in run-type habitat, particularly those in the R2 category (Table 7.5). These areas provided greater depth and lower velocities than adjacent upstream riffle or rapid sections. In addition, the substrate was less coarse and compacted. The preferred spawning areas were often associated with high quality holding habitat (e.g., R1, P1). Successful egg collection sites were frequently located downstream of chutes (i.e., sections of confined channel and deep-fast flows).


North Fork
4000
4500
4600
4700
Dugout
Upstream Limit of Habitat Mapping
350
Cabin Cr.
4100
Dam
OLDMAN RIVER
345
4200
340
FSL
Creek
Dugout
06
05
04
03
02
Creek
Creek
Cowley
Airfield (emergency)
3900
Dugout
3800
10
09


4450
4700
Dam
Dam
Dam
Dam
4200
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4300
4000
4000
3900
3800
ER
340
FSL
335
330
325
Cowley
Airfield (emergency)
Dugout
FIFTH MERIDIAN
Tennessee Cr.
84
85
86
87
88
CROWSNEST R.
CASTLE R.
Historic Site
11
10
09

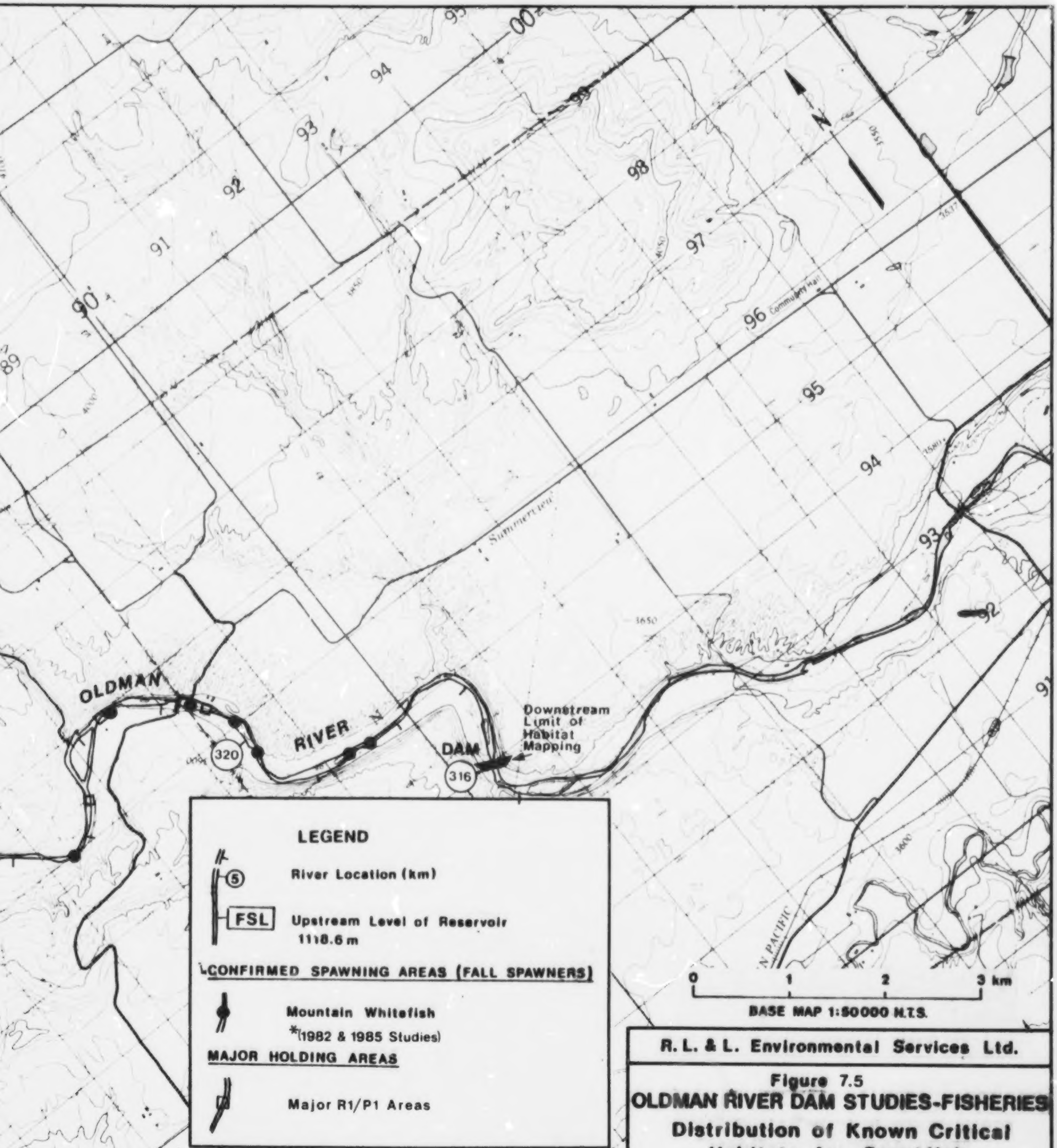
N
OLDMAN
RIVER
DAM
320
316
Downstream Limit of Habitat Mapping
Summerview
Community Hall
CANADIAN PACIFIC
90
91
92
93
94
95
96
97
98
99
00
89
95
94
93
92
91
LEGEND
River Location (km)
FSL Upstream Level of Reservoir 1118.6 m
CONFIRMED SPAWNING AREAS (FALL SPAWNERS)
Mountain Whitefish
*(1982 & 1985 Studies)
MAJOR HOLDING AREAS
Major R1/P1 Areas
0
1
2
3 km
BASE MAP 1:50000 N.T.S.

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Figure 7.5
OLDMAN RIVER DAM STUDIES-FISHERIES
Distribution of Known Critical Habitats for Sportfish
Oldman River-1985

The physical characteristics at successful egg collection sites in 1985 are presented in Table 7.10. Due to a substantial rise in water level subsequent to the spawning period, depth and velocity measurements are approximate only. The higher water levels (particularly below the Castle River) prevented wading to the egg deposition sites. Depth and velocity conditions recorded at this time likely do not accurately represent those present at the time of spawning. However, depths recorded in the vicinity of the egg collection sites generally ranged between 50-90 cm and surface velocities ranged between 0.7-1.5 m$\cdot$s^{-1}. Substrates at the sites were dominated by material in the 3.2-12.8 cm (Class 6-7) range, with some overlap into the 1.6-3.2 cm (Class 5) and 12.8-25.6 cm (Class 8) range.

Detailed depth/velocity measurements and substrate percentage composition were recorded at successful spawning sites in the Oldman River in 1982 (O'Neil et al. 1982). Egg deposition was recorded in depths ranging from 55 cm to in excess of 100 cm; however, the most frequently recorded depth was appeared to be in the 60 to 80-cm range. Surface velocities in high-use spawning areas exhibited considerable variation, ranging from 0.7-1.1 m$\cdot$s^{-1}. Velocities at nose depth (10 cm above bottom), however, were relatively uniform (i.e., generally between 0.4 and 0.6 m$\cdot$s^{-1}). The substrate at high-use sites was dominated by material in the 2.5 to 20-cm range (i.e., generally corresponding to substrate classes 6-8). The low occurrence of fines and coarse material (greater than 25 cm) at successful sites was noted during both studies. Preference was also shown for substrates exhibiting low compaction and embeddedness.

7.2.2.3 Rearing (Y-O-Y, Juveniles)

Only four y-o-y, representing approximately 2% of the total measured catch, were recorded in the present study. All were captured in the north fork of the Oldman River in August (i.e., two each in ES1, ES2). Although the limited catch of y-o-y likely indicates a low rearing density, as noted previously, boat-electrofishing is relatively inefficient for this cohort. O'Neil et al. (1982) conducted a seining program in July 1982 in the Oldman River from the Cowley Bridge downstream to the vicinity of L.N.I.D. diversion. Beach seining results provide a more realistic assessment y-o-y abundance. The mean CPUE value obtained in the section from Cowley Bridge to the Oldman River damsite in July was 2.57 fish/100 m^2 (i.e., results include y-o-y and smaller juveniles). This compares to values of 8.08 fish/100 m^2 in the section from the dam to approximately Crowlodge Creek and 15.9 fish/100 m^2 from the aforementioned site to near the L.N.I.D. diversion. These results indicate that the Oldman River, between the Oldman

River dam and the Cowley Bridge site, supported low rearing densities in comparison to downstream reaches. The suitability of this section for y-o-y is low due to the general absence of high quality rearing habitats. Preferred rearing areas include shallow riffle-pool assemblages (low to moderate velocity) and small side channels in braided sections (O'Neil et al. 1982). An area of concentrated y-o-y rearing was identified by O'Neil et al. (1982) immediately below the confluence of the Castle River (i.e., in a low-velocity side channel. Although use of this section by y-o-y was found to be limited, rearing use by juveniles was acknowledged.

The juvenile component of the 1985 population sample consisted of Age-1 and Age-2 individuals. These cohorts were well represented in both the North Fork and the lower Oldman River (Crowsnest River confluence to damsite).

Habitat types selected for y-o-y and juvenile rearing are presented in Table 7.5. The availability of these types within the study area (damsite to North Fork Bridge) is indicated in Table 7.17. Most (72%) of the potentially suitable (i.e., moderate to high quality habitat types) areas are situated below the FSL.

7.2.2.4 Adult Feeding/Holding

Adult mountain whitefish (including age-classes 3-4) were widely distributed in the Oldman River study section. In the north fork, CPUE values were highest in Section ES2 (upper section), suggesting relatively greater summer feeding/holding use of this reach.

Adult mountain whitefish utilized a variety of microhabitats for feeding/holding. The preferred habitats were RA/BG and R2/BG (Table 7.5); also utilized extensively were RA, R1, R2, and P1. Strong preference was shown for boulder-garden (BG) in association with RA and R2 areas. The use of deeper and faster microhabitats by adults resulted in habitat separation from the y-o-y and juveniles. Table 7.17 compares the potential availability of preferred habitat types in the Oldman River study area above and below the FSL. As indicated 26% of the total available preferred habitat is situated upstream of the reservoir FSL; 74% is situated below the FSL.

7.2.2.5 Overwintering

The overwintering distribution and habits of mountain whitefish in the Oldman River have not been documented. Late fall fish distribution patterns indicate the occurrence of an outmigration from the study section prior to or following spawning. It is conceivable that the majority of overwintering occurs in the lower reaches of the

Table 7.17 Relative availability (hectares/km and percentage composition)[a] of feeding/holding and overwintering habitat, above and below FSL, for major sportfish species during low-flow periods, Oldman River.

Life Requisite Function	Mountain whitefish				Rainbow trout			
	Above FSL		Below FSL		Above FSL		Below FSL	
	ha/km	%	ha/km	%	ha/km	%	ha/km	%
Rearing (y-o-y, juveniles)	0.54	28	0.89	72	0.70	41	0.63	59
Adult Feeding/Holding	1.71	26	3.16	74	0.15	14	0.57	86
Overwintering	0.62	18	1.78	82	0.62	18	1.78	82
Combined	**2.86**	**24**	**5.84**	**76**	**1.46**	**24**	**2.39**	**76**

[a] Values based on surface area contributions of high (5) and moderate-high (4) quality habitat types (Table 7.5).

Oldman River, particularly in habitats below the damsite. It is assumed that the deeper areas with significant flow-through would provide the most suitable overwintering conditions; these include the following habitat types: R1, P1, R2, R2/BG (Table 7.5). The distribution of these types above and below FSL are as follows: 18% situated above and 82% below (Table 7.17). When only highest quality areas (i.e., R1/P1) are considered the distribution is similar: 15% above FSL and 85% below FSL. With respect to the R1/P1 areas above FSL, the majority are situated in the initial 5.0 km of the section (i.e., reach characterized by a sinuous channel and excised valley) (Figure 7.5).

7.2.2.6 Movements

In the present study, 78 mountain whitefish were tagged in the Oldman River; two (3%) were recaptured, one by the study crew and one by an angler (Appendix C2). Recaptured mountain whitefish exhibited net downstream movements of 4.9 km and 16.3 km over periods of 17 and 60 days-at-large respectively. The significance of these movements is unclear.

O'Neil et al (1982) suggested the following mountain whitefish movements in fall 1982: 1) a movement of immature age classes from upstream feeding areas, into the Summerview Bridge area (and possibly further downstream) in mid to late September; 2) downstream post-spawning movements of adults from spawning areas situated upstream of the Summerview Bridge, in early to mid October; and 3) a downstream movement of whitefish past the Summerview Bridge in mid to late October. I.E.C. Beak (1985a, 1985b) determined the presence of a major downstream movement past the LNID Weir in fall 1984 and also a sizeable upstream movement past that site in spring 1985. Large scale movements past the proposed dam site in spring 1985 were not documented (i.e., due to high spring flows that prevented effective trapping operations) (I.E.C. Beak 1985b). However, the combined results of studies to date indicate defined movement patterns in the Oldman River within the study area, as follows:

> In the spring, adults and larger juveniles undertake protracted upstream movements into the study area from overwintering areas situated downstream. This movement likely begins shortly after break-up with individuals dispersing throughout the feeding/rearing habitats in Oldman River mainstem, Castle, and Crowsnest rivers. Commencing in mid to late September, a protracted downstream migration of immature mountain whitefish occurs. Extensive numbers from the upper reaches of the Oldman River and larger tributaries apparently move downstream past the

dam site to overwintering areas in the lower Oldman River (i.e., possibly below Summerview Bridge). A sizeable portion of the adult population also undertakes defined downstream movements in the fall period, leaving feeding/holding areas in favor of spawning areas situated downstream (i.e., primarily below the damsite). After spawning, these individuals continue their downstream movements toward overwintering areas (i.e., possibly below Summerview Bridge).

7.2.2.7 Life History Analysis

Length data were obtained from 187 mountain whitefish in the August-October 1985 survey period. Of this total, 162 were sampled from the north fork of the Oldman River (above confluence with Crowsnest River). The results (i.e., length-frequency, age-length, etc.), then, largely depict the mountain whitefish population in the upper Oldman River. Individuals ranged in length (fork length) from 80 mm to 411 mm; the majority (approximately 83%) were within the 130 mm to 300 mm interval (Figure 7.3). Weights were recorded for 94 mountain whitefish; the values ranged from 20 g to 700 g.

Mountain whitefish in the aged sample (N=33) ranged in age from 0 to 8 years; these age-classes correspond to the 1985-1977 year-classes (Figure 7.3). The population sample was dominated by Age-1 to Age-3 individuals (1984 to 1982 year-classes).

The age-length and age-weight relationships for mountain whitefish in the Oldman River are provided in Table 7.18. Mountain whitefish growth rates in the Oldman River (i.e., notably the North Fork) appear to be somewhat slower than in the Crowsnest River(Table 7.12); in contrast, they appear to be slightly higher than were recorded in the Castle River. Age-at-maturity data, although very limited, suggest that a small portion of the population may attain spawning maturity at Age-2. By Age-3 all fish appear to have reached spawning maturity.

The length-weight regression calculated for mountain whitefish (sexes combined) from the Oldman River was:

$$W = (2.9 \times 10^{-6})\, L^{3.25} \quad (N=94,\ r^2=0.9767)$$

The mean condition factor (k) for the weighed sample (N=94) was 1.1581.

Table 7.18 Age-length and age-weight relationships for mountain whitefish (sexes combined) from the Oldman River, August-October 1985.

Age Class	Year Class	Fork Length (mm)				Weight (g)			
		N	$\bar{x}$	SD	95% CI	N	$\bar{x}$	SD	95% CI
0	1985	4	83	2.5	79-87	-	-	-	-
1	1984	3	155	4.6	143-166	1	50	-	-
2	1983	2	212	-	-	1	100	-	-
3	1982	6	266	8.9	257-275	1	280	-	-
4	1981	9	290	8.6	283-296	4	273	23.6	235-310
5	1980	5	319	18.4	296-342	1	410	-	-
6	1979	2	344	-	-	1	400	-	-
7	1978	1	357	-	-	1	580	-	-
8	1977	1	397	-	-	1	620	-	

7.2.3 RAINBOW TROUT

7.2.3.1 Distribution and Relative Abundance

Rainbow trout were distributed throughout the Oldman River study area in all surveyed periods. A total of 157 rainbow trout (44% of the total sportfish catch) were recorded from survey sections in the Oldman River; 43% of these were captured in section ES2 and 42% in ES1 in August (Table 7.16).

Rainbow trout abundance in sections ES1 and ES2 in August was similar as indicated by their respective CPUE values of 9.17 and 10.62 fish/km (Table 7.16). The substantially lower CPUE values (i.e., 2.47 fish/km) recorded in ES1 in October, may indicate movements out of this area, possibly related to overwintering. Sampling was not conducted in ES2 in October. Results of sampling at population section ORP1 on 3 October indicated a low use of this area by rainbow trout (Table 7.16).

7.2.3.2 Spawning

The degree of use of the Oldman River in the study area for rainbow trout spawning remains uncertain. Electrofishing capture data from mid-May 1982 for a 1.0 km sample section below Castle River (O'Neil et al. 1982) and more extensive sampling by I.E.C. Beak (1985b) in early May 1985 (including sections from the North Fork Bridge) to the Pincher Station Bridge indicate the presence of low numbers of adults in these sections during the immediate post-spawning period. In the latter study, large numbers of rainbow trout (some in post-spawning condition) were sampled in the Crowsnest River during the same time period. Age-structure and age-growth data for the north fork reach indicate that the rainbow trout population in the Oldman River is separate from the Crowsnest River population. This being the case, spawning must occur within the Oldman River study section.

7.2.3.3 Rearing (Y-O-Y, Juveniles)

The extent and distribution of young-of-the-year and juvenile rainbow trout in the Oldman River is reflected in the electrofishing results from August and October (Table 7.16). Young-of-the-year were not captured suggesting that rearing use by this cohort was very limited. It should be mentioned, however, that boat electrofishing is relatively ineffective for this age-class in comparison to larger juveniles and adults. In contrast, juveniles (largely Age-1 and Age-2 individuals) were numerous (comprising approximately 25% of the catch) particularly in the North Fork study sections. Juveniles were most common in boulder garden (BG) habitat types particularly in association with riffle (RF) (Table 7.5). Other types utilized were: RF, RA/BG, and R3/BG. Table 7.17 compares the availability of potential feeding/holding habitat for y-o-y and juveniles above and below FSL. The distribution is as follows: 41% above the FSL and 59% below the FSL.

7.2.3.4 Adult Feeding/Holding

Adult rainbow trout were captured in all study sections. The population was largely comprised of Age-2 and Age-3 individuals, although most (64%) of the measured catch was made up of trout in the 170-270 mm size range (largely Age-2). Adults (270-380 mm) displayed a preference for high quality holding areas (R1, P1) although moderate quality runs (R2/BG, R2) were also utilized (Table 7.5). Major R1/P1 areas are shown in Figure 7.5. Smaller adults also utilized these habitat types when available, but also made extensive use of shallower, boulder garden associated types (i.e., RF/BG, R3/BG, RA/BG), co-habitating in these habitats with juveniles. Most (86%) of the preferred feeding/holding habitat (i.e., moderate to high quality habitat types) for adults is situated below the FSL. When only highest quality holding areas (i.e., R1, P1) are considered the distribution is as follows: 15% above the FSL and 85% below the FSL. The distribution of these areas is illustrated in Figure 7.5.

7.2.3.5 Overwintering

The overwintering distribution and habits of rainbow trout in the Oldman River study section have not been documented. The majority (82%) of preferred holding habitat (i.e., moderate to high quality holding areas) is situated below the FSL (Table 7.17). When only highest quality holding areas (i.e., R1, P1) are considered the distribution is as follows: 15% above FSL and 85% below FSL. The majority of R1/P1 habitats situated above FSL are found within the initial 5 km reach (Figure 7.5). The remaining portion of the study section, which is approximately 9 km in length, provides only four high quality holding areas.

7.2.3.6 Movements

Of the 44 rainbow trout tagged and released in the Oldman River, one (2%) was recaptured (Appendix C2). This individual was recaptured by an angler on 1 September, approximately 700 m upstream from its release location. Insufficient data is available to determine rainbow trout movements patterns in the Oldman River, although a segment of the population in the upper Oldman River likely is resident in the area, while another segment may undertake seasonal movements related to specific life history functions (e.g., overwintering).

7.2.3.7 Life History Analysis

Length data were obtained from 152 rainbow trout in the August-October 1985 survey period. All but four of these fish were from the north fork (i.e., Oldman River above Crowsnest River confluence). The results (i.e., length-frequency, age-length, etc.), then, largely depict the rainbow trout population in the upper Oldman River. Individuals ranged in length (fork length) from 93 mm to 432 mm; however, most (approximately 92%) were within the 100 mm to 270 mm interval (Figure 7.4). Weights were recorded for 101 rainbow trout; the values ranged from 10 g to 1220 g.

Rainbow trout in the aged sample (N=60) ranged in age from 1 to 4 years; these age-classes correspond to the 1984-1981 year-classes (Figure 7.4). The population sample was dominated by Age-1 (1984 year-class) and Age-2 (1983 year-class) individuals.

Age-length and age-weight relationships for the population sample are given in Table 7.19. Rainbow trout growth rates (i.e., mean lengths attained at a given age) in the Oldman River (notably the north fork) are substantially lower than those achieved in the Crowsnest River; they appear to be slightly better than those recorded in the Castle River (Table 7.14). Age-at-maturity data is very limited; however, it is likely that the majority reach spawning maturation at Age-3 (i.e., based on data for other study streams).

The length-weight regression calculated for rainbow trout (sexes combined) from the Oldman River was:

$$W = (3.24 \times 10^{-6})\ L^{3.25}\ (N=101,\ r^2=0.9802)$$

The mean condition factor (k) for the weighed sample (N=152) was 1.2646.

7.2.4 INCIDENTAL SPECIES

Bull trout and burbot were captured on an occasional basis in the Oldman River. Two bull trout were encountered, one in the north fork (209 mm, Age-2) on 18 August and one in the section upstream of the Castle River confluence (361 mm, 530 g, Age-3)

Table 7.19 Age-length and age-weight relationships for rainbow trout (sexes combined) from the Oldman River, August-October 1985.

Age Class	Year Class	Fork Length (mm)				Weight (g)			
		N	$\bar{x}$	SD	95% CI	N	$\bar{x}$	SD	95% CI
1	1984	25	134	24.5	123-144	9	27	17.5	13-40
2	1983	28	221	29.3	209-232	16	147	72.2	109-186
3	1982	6	316	41.4	273-360	5	482	219.6	245-719
4	1981	1	432	-	-	1	1220	-	-

on 3 October; both were considered to be immature. Two burbot were captured, one in the North Fork (451 mm) on 19 October and one in the section upstream of the Castle River (735 mm) on 3 October.

Bull trout are more common in the Oldman River upstream of the Castle River confluence (Radford 1975). Burbot were recorded in low numbers within the study area by English (1984).

7.3 CASTLE RIVER

7.3.1 MOUNTAIN WHITEFISH

7.3.1.1 Distribution and Relative Abundance

Mountain whitefish were widely distributed in Castle River study section in each of the survey periods. A total of 159 mountain whitefish were captured, contributing 80% to the total sportfish catch (all species combined) (Table 7.20). The majority of mountain whitefish (78%) were captured in section ES1 during August.

In section ES1 (the only section sampled in each monthly survey period) mountain whitefish were most abundant during the August period (19.04 fish/km; Table 7.20). The substantially lower CPUE values (1.28 fish/km) recorded in October suggest movements out of the area had occurred. Low mountain whitefish densities also were recorded in section ES2 in October suggesting a similar out-migration may have occurred from this section.

7.3.1.2 Spawning

Extent and Distribution

Electrofishing surveys were conducted during October 1985 to determine the distribution and relative abundance of adults during the spawning season (Table 7.20). Although very few adults were present in the upper section (ES2) on 6 October, a few gravid individuals of both sexes were encountered. This indicated low overall spawning use and that spawning had not yet been completed. Mountain whitefish adults also were scarce in the lower sample section (i.e., survey conducted on 10 October); one small concentration of ripe males was encountered in Run habitat immediately below the Highway 3 crossing.

Table 7.20 Summary of boat electrofishing catch and CPUE (catch/km and catch/min) for the three major sportfish species in general survey sections ES1 and ES2 and population section CAP1 on the Castle River, August to October 1985.

Section	Location (km)	Date	Sample Interval (h)	Discharge (m³/s)	Sample Effort (min)	Sample Distance (km)	Catch and CPUE (catch/km and catch/min)								
							Bull trout			Mountain whitefish			Rainbow trout		
							No. Caught	Catch/ km	Catch/ min	No. Caught	Catch/ km	Catch/ min	No. Caught	Catch/ km	Catch/ min
ES1	**14.9–9.7**	**17 Aug.**	**1345–1715**	**6.77**	**59.1**	**5.2**	**4**	**0.77**	**0.07**	**99**	**19.04**	**1.68**	**16**	**3.08**	**0.27**
Stop #1	14.3				2.9	0.6				4	6.67	1.38	2	3.33	0.69
#2	14.0				6.1	0.3	1	3.33	0.16	11	36.67	1.79	1	3.33	0.16
#3	13.3				4.4	0.7				1	1.43	0.23	1	1.43	0.23
#4	12.8				10.0	0.5	1	2.00	0.10	5	10.00	0.50	1	2.00	0.10
#5	12.0				5.9	0.8	1	1.25	0.17	21	26.25	3.54	2	2.50	0.34
#6	11.0				5.4	1.0	1	1.00	0.18	6	6.00	1.11	2	2.00	0.37
#7	10.4				10.5	0.6				33	55.00	3.13	1	1.67	0.09
#8	9.7				13.8	0.7				18	25.71	1.31	6	8.57	0.44
ES1	**13.3–0.0**	**10 Oct.**	**1345–1800**	**10.3**	**109.4**	**13.3**	**4**	**0.30**	**0.04**	**17**	**1.28**	**0.16**	**14**	**1.05**	**0.13**
Stop #1	9.7				27.7	3.6	2	0.56	0.07	3	0.83	0.11	1	0.28	0.04
#2	7.0				22.9	2.7	1	0.37	0.04	11	4.07	0.48	4	1.48	0.17
#3	0.0				58.8	7.0	1	0.14	0.02	3	0.43	0.05	9	1.29	0.15
ES2	**24.0–14.9**	**6 Oct.**	**1145–1500**	**12.5**	**63.2**	**9.1**	**1**	**0.11**	**0.02**	**11**	**1.21**	**0.17**	**9**	**0.99**	**0.14**
CAP1	**14.3–13.0**				**82.3**	**5.5**	**2**	**0.36**	**0.02**	**32**	**5.82**	**0.39**	**19**	**3.45**	**0.23**
Run #1		22 Sep.	1030–1050	17.8	11.7	1.0	1	1.00	0.09	2	2.00	0.17	2	2.00	0.17
#2		24 Sep.	1415–1440	17.0	14.3	1.0	1	1.00	0.07	12	12.00	0.84	5	5.00	0.35
#3		24 Sep.	1530–1555	17.0	14.2	0.9				15	16.67	1.06	1	1.11	0.70
#4		26 Sep.	1100–1125	16.7	21.6	1.3				1	0.77	0.05	8	6.15	0.37
#5		26 Sep.	1235–1300	16.7	20.5	1.3				2	1.54	0.10	3	2.31	0.15

Egg collection surveys were conducted on 27 October (upper section) and on 22 October (lower section). In order to stratify sampling efforts, collections were undertaken at sites exhibiting preferred spawning characteristics and locations where concentrations of adults had been identified on the earlier survey (i.e., below Highway 3 crossing).

Only two mountain whitefish spawning sites were confirmed (Figure 7.6); one upstream and one downstream of the FSL. It appears that spawning use of the Castle River is minimal; however, it should be pointed out that egg sampling was limited (Table 7.9). The results of the electrofishing surveys in early October (i.e., low numbers of adults immediately prior to spawning season) also suggest limited spawning use of the Castle River.

Chronology

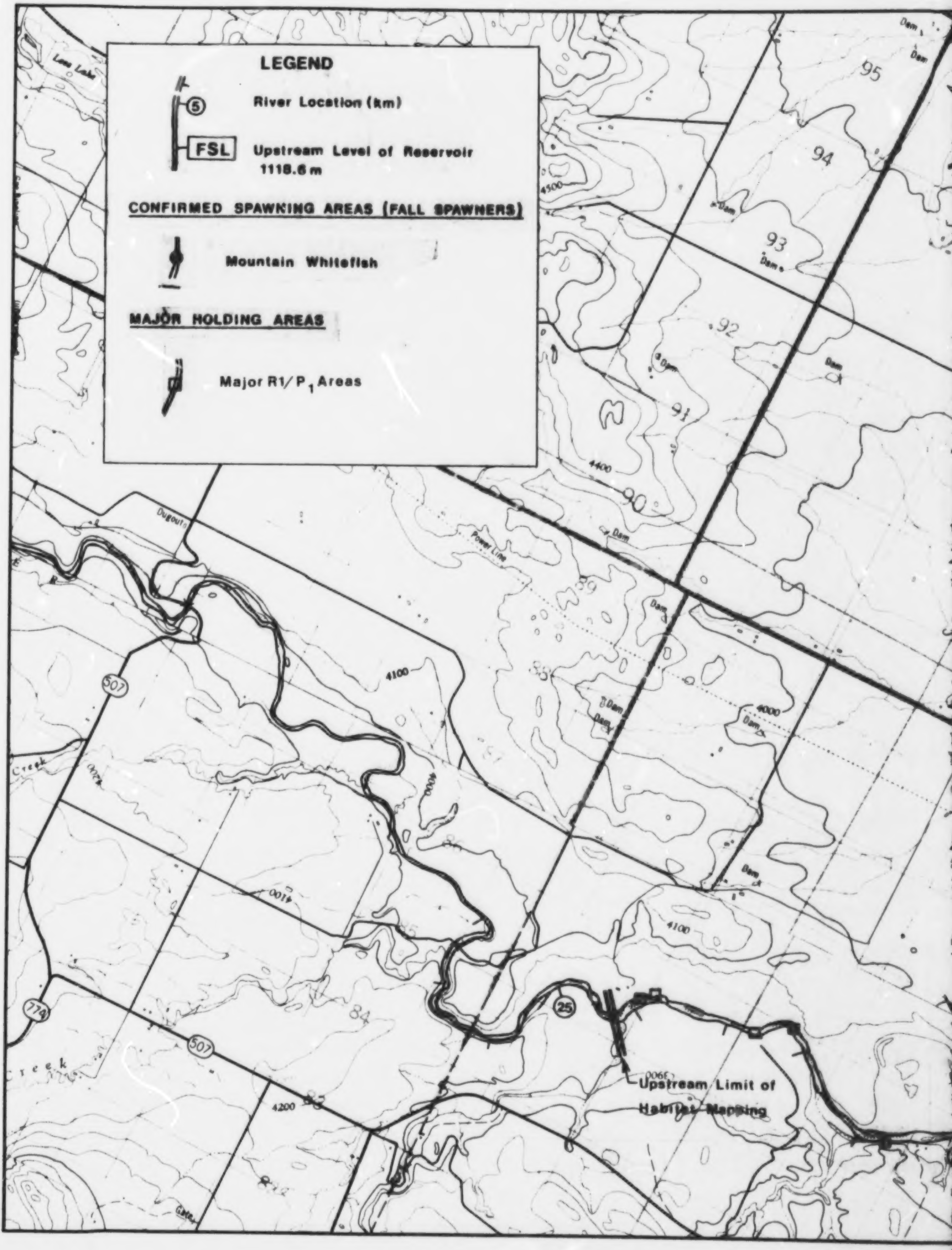
Based on the presence of pre-spawning individuals on 6 October and the collection of eggs on 22 October it is apparent that spawning occurred during the intervening period. Water temperatures during this period ranged between 3.0-4.5°C, which are within the preferred range for spawning.

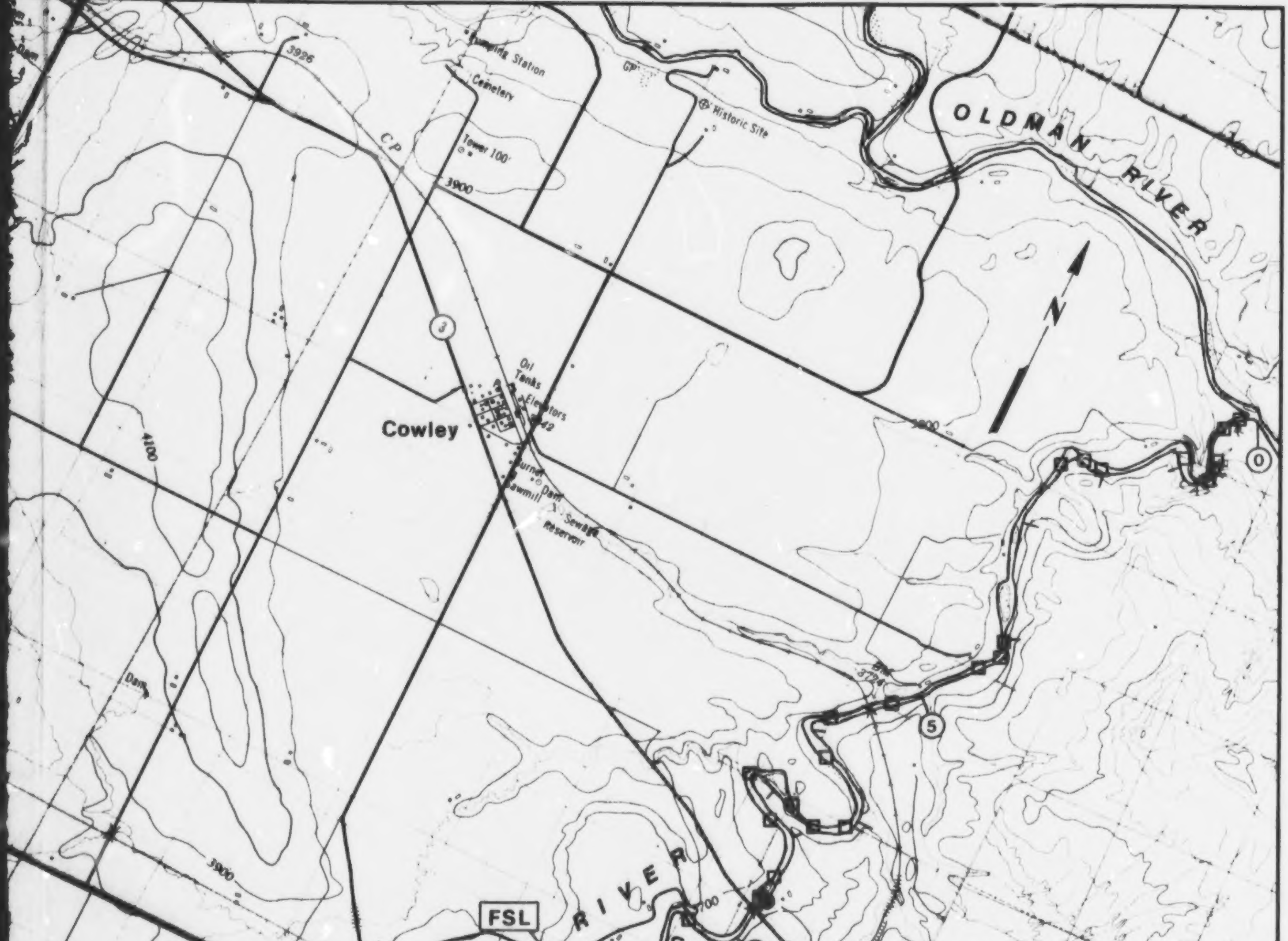
Microhabitat Selection

All successful egg collection sites were situated in Run habitat (R2) over cobble dominated substrate (i.e., very similar to areas selected in Oldman River). In general, areas providing suitable depth, velocity, and substrate characteristics were very limited in the Castle River.

7.3.1.3 Rearing (Y-O-Y, Juveniles)

A total of 11 y-o-y mountain whitefish were collected in the present study suggesting limited rearing use of the Castle River study section. Although boat electrofishing is not an efficient capture method for these individuals, the limited availability of suitable rearing habitat for y-o-y (e.g., shallow riffle/pool assemblages, small side channels) in the section supports this contention. Mountain whitefish juveniles (largely Age-1 to 2) were widely distributed in the study section but in low numbers. Preferred habitats for these individuals were relatively common, especially in the lower study reach (ES1). Table 7.21 indicates that availability of preferred habitat (i.e., moderate to high quality areas) for rearing in the study area. As indicated, 42% of the


LEGEND
5
River Location (km)
FSL
Upstream Level of Reservoir 1118.6 m
CONFIRMED SPAWNING AREAS (FALL SPAWNERS)
Mountain Whitefish
MAJOR HOLDING AREAS
Major R1/P1 Areas
Upstream Limit of Habitat Mapping
25
507
774
Creek
Dugouts
Power Line
Dam
4500
4400
4100
4000
4200
95
94
93
92
91
90
89
84
83


OLDMAN RIVER
Pumping Station
Cemetery
GP
Historic Site
Tower 100'
CP
3926
3900
4100
4000
3800
3700
3
Oil Tanks
Elevators
Cowley
Sawmill
Dam
Sewage Reservoir
N
0
5
10
15
20
RIVER
FSL
CASTLE
Dam
Dugout
Campsite
0 1 2 3 km
BASE MAP 1:50000 N.T.S.

R.L. & L. Environmental Services Ltd.

Figure 7.6

OLDMAN RIVER DAM STUDIES-FISHERIES

Distribution of Known Critical Habitats for Sportfish

Castle River-1985

Table 7.21 Relative availability (hectares/km and percentage composition)[a] of feeding/holding and overwintering habitat, above and below FSL, for major sportfish species during low-flow periods, Castle River.

Life Requisite Function	**Mountain whitefish**				**Rainbow trout**			
	Above FSL		**Below FSL**		**Above FSL**		**Below FSL**	
	ha/km	**%**	**ha/km**	**%**	**ha/km**	**%**	**ha/km**	**%**
Rearing (y-o-y, juveniles)	0.37	42	0.50	58	0.57	54	0.47	46
Adult Feeding/Holding	2.60	49	2.61	51	0.16	19	0.65	81
Overwintering	0.96	41	1.35	59	0.96	41	1.35	59
Combined	**3.93**	**46**	**4.46**	**54**	**1.69**	**40**	**2.47**	**60**

[a] Values based on surface area contributions of high (5) and mod.-high (4) quality habitat types (Table 7.5).

potentially available habitat in the study area is situated above the FSL. However, preferred habitat types made up only 12.5% of the total surface area of the remaining section (Table 6.8), suggesting that overall rearing capability will be low (i.e., particularly for y-o-y).

7.3.1.4 Adult Feeding/Holding

Adult mountain whitefish (largely Age-3 to 8) were widely distributed in the Castle River study section but in low numbers (Table 7.20). The preferred habitat for adults were RA/BG and R2/BG (Table 7.5), although RA, R2, R1, and P1 types were also utilized extensively. As indicated on Table 7.21, the distribution of preferred areas (i.e., moderate to high quality habitat types) for adult feeding/holding above and below the FSL is equitable. The reach above the FSL will contain extensive adult feeding areas since approximately 87.5% of the section is comprised of preferred habitats (Table 6.8).

7.3.1.5 Overwintering

The overwintering distribution and habits of mountain whitefish in the Castle River study section has not been investigated. Electrofishing data from October, however, suggests that the majority of mountain whitefish leave the Castle River study section prior to or following the spawning season (possibly to overwintering areas in the Oldman River) (Table 7.20). Potentially suitable overwintering sites are present in the study area, however, particularly in the lower survey reach (ES1). Of the preferred habitat areas (i.e., moderate to high quality habitat types), 59% are located in the lower reach (below the FSL) (Table 7.21). When only prime holding areas are considered (i.e., R1, P1) only 22% are located above the level of flooding, suggesting limited overwintering potential in this section. R1/P1 habitats make up only 5.4% of the total surface area in the reach above the FSL (Table 6.8).

7.3.1.6 Movements

Of the 26 mountain whitefish tagged and released in the Castle River in 1985, none were recaptured (Appendix C2). One mountain whitefish, initially tagged by IEC Beak (1985b) personnel in the Oldman River (at Summerview Bridge) on 2 May 1985 was recaptured by our study team in the Castle River on 17 August, a net upstream movement of 27.5 km. This upstream movement into the Castle River in the spring/summer period and indications of outward migrations in the fall (electrofishing results) provides evidence that a segment of the mountain whitefish population in the Castle River are only seasonal residents (i.e., summer feeding in Castle River, overwintering in Oldman River).

The presence of all life history stages of mountain whitefish in the Castle River during in late fall, suggests that a portion of the population may be year round residents (i.e., undertaking only intrasystem movements related to various life history functions).

7.3.1.7 Life History Analysis

Length data were obtained from 128 mountain whitefish in the August-October 1985 survey period. Individuals ranged in length (fork length) from 72 mm to 372 mm; however, the majority (approximately 82%) were within the 120 mm to 290 mm interval (Figure 7.3). Weights were recorded for 23 mountain whitefish; the values ranged from 4 g to 660 g.

Mountain whitefish in the aged sample (N=37) ranged in age from 0 to 8 years; these age-classes correspond to the 1985-1977 year-classes (Figure 7.3). The population sample was dominated by Age-1 to 4 individuals (1984 to 1981 year-classes).

The age-length and age-weight relationships for mountain whitefish in the Castle River are provided in Table 7.22. Mountain whitefish growth rates in the Castle River are substantially slower than in the Crowsnest River; they also appear to be slightly slower than those determined for whitefish in the north fork of the Oldman River (Table 7.12). Based on available age-at-maturity data it appears that most mountain whitefish attain sexual maturity at Age-3.

The length-weight regression calculated for mountain whitefish (sexes combined) from the Castle River was:

$$W = (2.39 \times 10^{-6})\ L^{3.29}\ (N=23,\ r^2=0.9925)$$

The mean condition factor (k) for the weighed sample (N=23) was 1.1457.

7.3.2 RAINBOW TROUT

7.3.2.1 Distribution and Relative Abundance

Rainbow trout were widely distributed in the Castle River Study area in each of the survey periods; however, numbers were low. In the present study, 48 rainbow trout were captured; they contributed 22% to the total sportfish catch (all species combined) in the Castle River Table 7.20).

Table 7.22 Age-length and age-weight relationships for mountain whitefish (sexes combined) from the Castle River, August-October 1985.

Age Class	Year Class	Fork Length (mm)				Weight (g)			
		N	$\bar{x}$	SD	95% CI	N	$\bar{x}$	SD	95% CI
0	1985	11	79	5.6	75-83	-	-	-	-
1	1984	2	130	-	-	1	40	-	-
2	1983	6	174	11.0	162-185	3	54	5.3	41-67
3	1982	7	254	18.8	236-271	5	206	35.8	162-251
4	1981	4	274	22.5	238-310	4	248	53.8	162-333
5	1980	2	280	-	-	1	255	-	-
6	1979	2	305	-	-	2	460	-	-
7	1978	2	339	-	-	1	660	-	-
8	1977	1	372	-	-	-	-	-	-

In the general survey sections, the highest capture rate obtained for rainbow trout was 3.08 fish/km, this value was recorded in section ES1 in August (Table 7.20). The reasons for the lower capture rates recorded from this section in October are unknown. Seasonal comparisons of rainbow trout abundance were not available for section ES2.

7.3.2.2 Spawning

The degree of use of the Castle River study section for rainbow trout spawning remains uncertain. I.E.C. Beak (1985b) conducted a boat electrofishing survey in the lower reach (corresponding to portions of ES1 in present study) in early May 1985 with an objective towards identifying spawning concentrations of adults. Although the peak of the spawning period may have been missed, only two rainbow trout were captured, suggesting limited spawning use.

7.3.2.3 Rearing (Y-O-Y, Juveniles)

Young-of-the-year rainbow trout were not captured in the Castle River during the present study. To some extent this could reflect low capture efficiency for this cohort (i.e., small size and habitat type selection). Juveniles (largely Age-1 and Age 2 fish) were relatively common; they were most common in boulder garden (BG) areas particularly when in association with riffle (RF) (Table 7.5). Other habitats utilized included RF, RA/BG, and R3/BG. Of the available moderate to high quality rearing habitat in the study section 54% is located upstream of the FSL (Table 7.21). This type of habitat made up approximately 19% of the total surface area of this upper section (Table 6.8).

7.3.2.4 Adult Feeding/Holding

Adult rainbow trout (largely Age-3 fish) exhibited a localized distribution in the Castle River study section, in response to the sporadic availability of preferred holding areas. Larger adults displayed a preference for high quality holding areas (R1, P1) although moderate quality runs were also utilized (Table 7.5). Smaller adults and sub-adults also utilized prime holding areas (i.e., R1, P1) but made considerable use of shallower, boulder garden associated types (i.e., RF/BG, R3/BG, RA/BG) as well. Major R1/P1 areas are shown in Figure 7.6. They co-habited the latter types with juveniles. Most of the potentially available preferred feeding/holding habitat in the Castle River study section is situated below the FSL, indicating that cover for adults is extremely limited in the upper reach. Prime feeding/holding areas make up only 5.4% of the total surface area in the section above the FSL. A factor limiting the quality of holding areas in the Castle River is the relatively low food production in upstream situated riffle and run sections (i.e., likely due to substrate and nutrient limitations).

7.3.2.5 Overwintering

Overwintering use of the Castle River study section by rainbow trout is uncertain, although it may be substantial (i.e., assuming that the rainbow trout in the system are resident). Most (59%) of the preferred overwintering areas (assumed to be R1, P1, R2, R2/BG) are located below the FSL (Table 7.21). When only prime areas (R1, P1) are considered, the distribution is as follows: 78% below the FSL and 22% above the FSL. It is apparent that the section above the level of reservoir flooding may be deficient in terms of overwintering potential, particularly with respect to the larger adults. Only 5.4% of the total surface area of the upper reach is comprised of R1/P1 habitat types.

7.3.2.6 Movements

In the present study, 15 rainbow trout were tagged and released in the Castle River; none were recaptured. No other information is available on movements of this species within the study area.

7.3.2.7 Life History Analysis

Length data were obtained from 58 rainbow trout in the August-Octoer 1985 survey period. Individuals ranged in length (fork length) from 97 mm to 571 mm; however, the majority (approximately 80%) were within the 120 mm to 240 mm interval. Weights were recorded for 22 rainbow trout; the values ranged from 16 g to 520 g. The largest individual captured in the Castle River (i.e., 571 mm) had an estimated weight of 2500 g.

Rainbow trout in the aged sample (N=34) ranged in age from 1 to 3 years; these age-classes correspond to the 1984-1982 year-classes (Figure 7.4). The population sample was dominated by Age-1 (1984 year-class) and Age-2 (1983 year-class) individuals (Figure 7.4).

Age-length and age-weight relationships for the population sample are provided in Table 7.23. Rainbow trout growth rates in the Castle River were substantially slower than those recorded for rainbow trout in the Crowsnest River and slightly slower than those determined for the rainbow trout north fork of the Oldman River (Table 7.14).

Table 7.23 Age-length and age-weight relationships for rainbow trout (sexes combined) from the Castle River, August-October 1985.

Age Class	Year Class	Fork Length (mm)				Weight (g)			
		N	$\bar{x}$	SD	95% CI	N	$\bar{x}$	SD	95% CI
1	1984	9	132	15.1	120-143	6	31	12.0	18-43
2	1983	20	209	25.1	197-221	11	105	51.7	71-140
3	1982	5	298	33.1	257-339	-	-	-	-

Based on limited age-at-maturity data it appears that spawning maturity is achieved at Age-3 for the majority of the population (i.e., small percentage of population may spawn at Age-2).

The length-weight regression calculated for rainbow trout (sexes combined) from the Castle River was:

$$W = (5.40 \times 10^{-6})\, L^{3.15} \quad (N=22,\ r^2=0.9826)$$

The mean condition factor (k) for the weighed sample (N=22) was 1.1758.

7.3.3 INCIDENTAL SPECIES

Bull trout and burbot were the other sportfish species recorded during electrofishing surveys on the Castle River in 1985. Bull trout were relatively common in electrofishing catches from the Castle River compared to their low abundance in the Oldman and Crowsnest rivers. A total of 11 bull trout were captured in the Castle River (Table 7.20); ten of these were encountered in the section below the Castle River Recreation Area. The captured individuals ranged in size from 152 mm to 486 mm. The length-frequency distribution was as follows: 152-160 mm (N=2), 193-268 mm (N=4), 317-357 mm (N=3), 462-486 mm (N=2). Recorded weights ranged from 30 g (for 152 mm fish) to 1040 g (for 462 mm fish). Based on limited ageing the fish ranged in age from 1 to 4 years, the majority being immature. The seasonal distribution of the catch was as follows: August (N=4), September (N=2), and October (N=5).

One burbot (562 mm, 960 g) was recorded in the Castle River. This individual was captured in section ES1 during the October survey.

Cutthroat trout were also reported from the Castle River in the present study. Anglers captured two cutthroat trout at CA5 (Appendix F14). These individuals likely originated from populations in the upper reaches of the Castle River.

SECTION 8
SPORT FISHING IN THE STUDY AREA

8.1 ANGLER CHARACTERISTICS

8.1.1 ANGLER RESIDENCE

Of the 244 anglers responding to the angler residency query in the present study, 96% resided in Alberta, and consisted mainly of anglers from Lethbridge (25%), Pincher Creek (22%), Calgary (12%), and the Crowsnest Pass area (12%) (Table 8.1). Non-resident Canadians contributed approximately 2% to the total anglers interviewed; individuals from Ontario and Saskatchewan were recorded. All non-resident aliens interviewed (2%) were from the United States.

The percentage composition of angler residence varied between study sections (Table 8.1). The high use of the Crowsnest River by non-local residents is likely due to the presence of Lundbreck Falls Recreation Area which attracts anglers and campers from a wider geographical area. The majority (44%) of anglers interviewed on the Oldman River were from Pincher Creek indicating a considerable local interest in this fishery. Angler use of the Castle River was primarily by residents of the Crowsnest Pass (45%) and Pincher Creek (27%).

A creel survey conducted on the Oldman River in 1982 indicated 88% of anglers resided within 50 km of the Oldman River; 73% were from Pincher Creek (O'Neil et al. 1982). The high percentage of non-local fishermen (i.e., over 50% from Lethbridge, Calgary, and other locations) during the present study indicates a growing popularity and interest in this fishery.

8.1.2 SPECIES SOUGHT

The species preference of anglers fishing in the Oldman River Dam Study Area was determined by asking individuals what species of sportfish they were actively fishing for. The results revealed several trends in species selection, and variability between study periods and study sections (Table 8.2).

Approximately 42% of anglers fishing in the Crowsnest River indicated they were fishing for rainbow trout (Table 8.2). In August, most anglers indicated "trout" as the preferred species; the substantial increase in those specifically fishing for rainbow trout in the September to November period likely reflects the greater contribution of local residents to the sample. These individuals were generally more knowledgeable of the

Table 8.1 Residence of interviewed anglers in the Oldman River Dam Study Area, August to November 1985.

Residence	Crowsnest R.		Oldman R.		Castle R.		Combined	
	No.	%	No.	%	No.	%	No.	%
Alberta Residents								
Lethbridge	50	40.3	10	9.2			60	24.6
Pincher Creek	4	3.2	48	44.0	3	27.3	55	22.5
Calgary	23	18.6	7	6.4			30	12.3
Crowsnest Pass[a]	13	10.5	11	10.1	5	45.4	29	11.9
Coledale	6	4.9	3	2.8			9	3.7
Lundbreck	4	3.2	4	3.7	1	9.1	9	3.7
Cowley	4	3.2	1	0.9			5	2.1
Ft. McLeod	1	0.8	3	2.8			4	1.6
Others	16	12.9	15	13.7	2	18.2	33	13.5
Non-Resident Canadians	3	2.4	1	0.9			4	1.6
Non-Resident Aliens			6	5.5			6	2.5
Total Responses	**124**	**100.0**	**109**	**100.0**	**11**	**100.0**	**244[b]**	**100.0**

Study Section: Crowsnest R., Oldman R., Castle R.

[a] Includes Coleman, Hillcrest, Burmis, and Blairmore.

[b] Does not include two non-respondents.

Table 8.2 Fish species sought by interviewed anglers in the Oldman River Dam Study Area, August to November 1985.

Study Section	Sample Period	Fish Species Sought (No. and % Composition)												Total Responses
		Rainbow Trout		Brown Trout		Mountain Whitefish		Trout		Trout/ Whitefish		Any Species		
		No.	%	No.	%	No.	%.	No.	%	No.	%	No.	%	
Crowsnest River	Aug.	17	19.8	1	1.2	2	2.3	41	47.7			25	29.1	86
	Sept.	9	81.8					1	9.1	1	9.1			11
	Oct. & Nov.	27	90.0					1	3.3	2	6.7			30
	Total	**53**	**41.7**	**1**	**0.8**	**2**	**1.6**	**43**	**33.8**	**3**	**2.4**	**25**	**19.7**	**127**
Oldman River	Aug.	1	2.9			11	31.4	19	54.3			4	11.4	35
	Sept.					3	100.0							3
	Oct. & Nov.	2	2.8			60	84.5			6	8.5	3	4.2	71
	Total	**3**	**2.8**			**74**	**67.9**	**19**	**17.4**	**6**	**5.5**	**7**	**6.4**	**109**
Castle River	Aug.					4	57.1	1	14.3			2	28.6	7
	Sept.					4	100.0							4
	Oct.												0	
	Total					**8**	**72.7**	**1**	**9.1**			**2**	**18.2**	**11**
Combined Total		**56**	**22.7**	**1**	**0.4**	**84**	**34.0**	**63**	**25.5**	**9**	**3.6**	**34**	**13.8**	**247**

species present in the system. Only one angler indicated a specific preference for brown trout, although most anglers were aware this species occurred in the system.

In the Oldman River and Castle River, mountain whitefish was the preferred species overall (Table 8.2). However, in the Oldman River a shift in angler interest was noted between August when "trout" was preferred and the September, October, and November periods when mountain whitefish became the primary target species. This reflects the high angler use of the Summerview Bridge area on the Oldman River during the fall. Large concentrations of mountain whitefish in this area at this time result in a very popular local fishery. The local importance of this fishery has been previously documented (O'Neil et al. 1982).

8.1.3 ANGLING METHODS

Anglers in the Oldman River Dam Study Area utilized a variety of methods; these are summarized in six major categories (Table 8.3). Anglers using "flies only", "bait only", and a combination of "flies and bait" constituted a majority (92%) in all study sections.

Angling with "bait" was the most popular method in the Crowsnest River, although most of the fly fishermen in the study area were encountered on the Crowsnest River. A combination of "flies and bait" was employed most frequently in the Oldman River study section; maggots were generally the bait used with flies. Bait fishing was the most frequent method used on the Castle River.

8.1.4 ANGLER ACCESS

The majority of angling in the Oldman River Dam Study Area was conducted from the stream bank. Fishermen often walked considerable distances above or below access points. This characteristic increased the difficulty in obtaining counts and interview data. In general, primary access points on all three study sections were located at bridge crossings (Figure 3.1). Additional access to the Crowsnest River is provided by roads situated within or in close proximity to the river valley.

With respect to the Crowsnest River approximately 75% of anglers were recorded in the Upper Crowsnest River study section (i.e., CN4 to CN7); approximately 50% were located at the Lundbreck Falls Recreation Area (CN6) (Table 8.4). The presence of the campground and the falls, which serve to concentrate anglers and fish respectively, combined to make CN6 the most popular angling location in the Oldman River Dam Study Area. In the Lower Crowsnest River (i.e., CN1 to CN3A), highest use occurred in

Table 8.3 Angling methods used by interviewed anglers in the Oldman River Dam Study Area, August to November 1985.

Category	Crowsnest River		Oldman River		Castle River		All Sections	
	No. Anglers Interviewed	% of Total	No. Anglers Interviewed	% of Total	No. Anglers Interviewed	% of Total	No. Anglers Interviewed	% of Total
Flies only	45	36.0	7	6.4			52	21.2
Bait only	53	42.4	19	17.4	7	63.6	79	32.3
Lure only	8	6.4	8	7.3	1	9.1	17	6.9
Fly and bait	17	13.6	74	67.9	2	18.2	93	38.0
Fly and lure	1	0.8			1	9.1	2	0.8
Bait and lure	1	0.8	1	1.0			2	0.8
Total	125	100.0	109	100.0	11	100.0	245	100.0

Table 8.4 Distribution of anglers in the Oldman River Dam Study Area, August to November 1985.

System	Location			Distribution of Anglers	
	Site Designation	km	Description	No.	%
Crowsnest River	CN1	2.0	J.R. Smythe farm	14	3.6
	CN2	2.5	R. & A. Westrop farm	2	0.5
	CN3	4.1	Wooden bridge	39	10.0
	CN3A	7.5-10.0	Todd Cr. to near F.S.L.	41	10.6
	CN4	12.6	Bridge near Lundbreck pumphouse	32	8.2
	CN5	13.9	Highway 3 Bridge	23	5.9
	CN6	15.6	Lundbreck Falls Recreation Area	193	49.6
	CN7	N.D.[a]	Highway 507 Bridge	45	11.6
	Total			389	100.0
Oldman River	OR1	309.6	Summerview Bridge	126	69.2
	OR2	321.0	Pincher Station Bridge	28	15.4
	OR2A	327.0	Glacier Park Co. farm	0	0.0
	OR3	330.6	Cowley Bridge (Hwy 510)	28	15.4
	Total			182	100.0
Castle River	CA1 & 2	5.4-9.6	CPR Bridge to Hwy. 3 Bridge	10	16.9
	CA3	12.3		3	5.1
	CA4	14.8	Castle R. Recreation Area (Hwy 3A)	4	6.8
	CA5	27.5	Canyon Bridge crossing	42	71.2
	Total			59	100.0

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[a] not determined.

the section from Todd Creek upstream to near the proposed reservoir FSL (CN3A). In this section, a road paralleling the river provides easy access; anglers generally park on the roadside and walk to the river. Access to sites CN1 and CN2 is through private land, a factor which limits the numbers of anglers using these sites (i.e., primarily restricted to use by local anglers).

In 1985, the majority (69%) of anglers in the Oldman River were recorded at OR1 (Table 8.4). This site also received the highest use of the three Oldman River census stations examined in 1982 (i.e., Summerview Bridge, Pincher Stn. Bridge and Cowley Bridge; O'Neil et al. 1982). Use of the Cowley Bridge site in the present study (OR3) is substantially greater than was recorded in 1982. This increase was likely due to the construction, in 1983, of a public access and parking site at the Cowley Bridge. Poor accessibility was identified as a factor limiting angler use of this site in 1982. Limited accessibility also may account for the absence of anglers recorded at OR2A during the present study (Table 8.4). Access to this site is through private land and anglers were not recorded at this site during the survey. The landowner indicated, however, that in the spring and early summer the site received a moderate level of use.

Lowest angler use was recorded in the Castle River study section (Table 8.4). The low overall use of the system likely results from:

a) The limited number of suitable access points;
b) The limited fish resources in the Castle River within the Oldman River Dam Study Area (see Section 7.3); and
c) the proximity to high quality, high profile fisheries (in the Crowsnest River and to a lesser extent in the Oldman River).

Within the Castle River, greatest angler use was recorded at the Canyon Bridge crossing (CA5) where 71% of the recorded anglers were observed (Table 8.4). The low recorded angler use of the campground at the Castle River Recreation Area (CA4) was surprising. Although 165 vehicles were observed at this site, only 4 anglers were recorded. Most of the users may have visited the recreation area solely for camping, but it is possible that the use of this area for angling was underestimated. During August, fisheries field personnel based at the campground noted that residents occasionally fished the river, but generally did so only for brief periods of time (i.e., less than 1 hour), and only when the weather was ideal. When questioned, these anglers indicated that they did not visit the campground specifically to fish and were angling only because the opportunity arose.

8.1.5 PREVIOUS VISITS

The majority (74%) of interviewed anglers had fished in the Oldman River Dam Study Area on at least one previous occasion in 1985 (Table 8.5). Approximately 24% of anglers indicated they "frequently" fished the area, a response that was generally defined as more than 10 previous visits.

Responses regarding previous visits were similar for the Crowsnest River and Oldman River study areas (Table 8.5). Both systems are heavily utilized by local anglers who fish these systems whenever the opportunity arises. The majority of anglers fishing the Castle River (i.e., 55%) had fished the system previously in 1985.

8.1.6 ANGLER RATINGS

Anglers were asked to rate the quality of the fishery in the system where they were encountered. Ratings were solicited in 1985 both for that specific day's fishing and for the season (if they had fished the system previously). Most anglers on the Crowsnest River and Oldman River rated the fishery on a daily basis as "Fair" and on a seasonal basis as "Good" (Table 8.6). The majority of respondents on the Castle River rated the fishery as "Good" on both a daily and seasonal basis. The Crowsnest River fishery received an "Excellent" seasonal rating from 12% of respondents. Only 3% of respondents from the Oldman River and none from the Castle River rated these fisheries as "Excellent".

8.2 CROWSNEST RIVER

8.2.1 ANGLER EFFORT

An estimated 2700 anglers utilized the Crowsnest River from 1 August to 31 October 1985, expending approximately 10 700 hours of effort (Table 8.7). Highest use was recorded in the Upper Crowsnest study section (UCN), above the proposed reservoir FSL. In this section, the greatest use (1480 anglers) was recorded at Site CN6 (Lundbreck Falls). With the exception of Site CN6, average daily angler pressure at all sites was greatest in the August period. Angler pressure remained relatively constant at CN6 during both monthly periods, likely due to the substantial number of tourists that stop to fish while enroute to other destinations.

The lower angler use of the LCN study section relative to the UCN study section is believed to be the result of limited access. Access to Site CN1 and CN2 is available only

Table 8.5 Previous visits of interviewed anglers to the three study sections in the Oldman River Dam Study Area in 1985.

Study Section	Total Angler Responses	Previous Visits in Current Year (No. and % composition of responses)							
		None		1 to 5		6 to 10		Frequently (>10)	
		No.	%	No.	%	No.	%	No.	%
Crowsnest River	127	31	24.4	57	44.9	9	7.1	30	23.6
Oldman River	109	29	26.6	49	45.0	6	5.5	25	22.9
Castle River	11	5	45.4	3	27.3	0	0.0	3	27.3
Total	**247**	**65**	**26.3**	**109**	**44.1**	**15**	**6.1**	**58**	**23.5**

Table 8.6 Summary of angler ratings of the fishery in the Oldman River Dam Study Area, August to November 1985.

Study Section	Total Angler Responses	Rating Classification (Number and % composition of Total Responses)							
		Poor		Fair		Good		Excellent	
		No.	%	No.	%	No.	%	No.	%.
Crowsnest River									
Daily	97	37	38.1	39	40.2	17	17.5	4	4.1
Overall	83	7	8.4	22	26.5	44	53.0	10	12.1
Oldman River									
Daily	99	31	31.3	40	40.4	27	27.3	1	1.0
Overall	89	2	2.2	38	42.7	46	51.7	3	3.4
Castle River									
Daily	11	2	18.2	3	27.3	6	54.5	0	0.0
Overall	5	0	0.0	2	40.0	3	60.0	0	0.0
Total									
Daily	207	70	33.8	82	39.6	50	24.2	5	2.4
Overall	177	9	5.1	62	35.0	93	52.4	13	7.4

Table 8.7 Estimates of angler effort, numbers, and catch from the Crowsnest River study section, August to October 1985.

				Estimated Catch (by species)[a]			
Site	Month	Est. Total Effort (hours)	Est. Total Anglers	Mountain whitefish	Brown trout	Rainbow trout	Combined[b] Catch
CN1&2	Aug.	170	35	10	5	50	65
	Sep.-Oct.	290	90	50	25	220	295
	Total	460	125	60	30	270	360
CN3	Aug.	1300	250	120	30	400	550
	Sep.-Oct.	620	200	100	50	460	610
	Total	1920	450	220	80	860	1160
Lower Crowsnest Combined	Aug.	1470	285	130	35	450	615
	Sep.-Oct.	910	290	150	75	680	905
	Total	2380	575	280	110	1130	1520
CN4	Aug.	670	130	60	15	200	275
	Sep.-Oct.	270	85	40	5	200	245
	Total	940	215	100	20	400	520
CN5	Aug.	470	90	40	10	150	200
	Sep.-Oct.	170	55	30	5	130	165
	Total	640	145	70	15	280	365
CN6	Aug.	2600	510	290	60	380	730
	Sep.-Oct.	3000	970	410	70	1800	2280
	Total	5600	1480	700	130	2180	3010
CN7	Aug.	1000	200	90	0[c]	320	410
	Sep.-Oct.	150	50	20	0	110	130
	Total	1150	250	110	0	430	540
Upper Crowsnest Combined	Aug.	4740	930	480	85	1050	1615
	Sep.-Oct.	3590	1160	500	80	2240	2820
	Total	8330	2090	980	165	3290	4435
All Sites Combined	Aug.	6210	1215	610	120	1500	2230
	Sep.-Oct	4500	1450	650	155	2920	3725
	Total	10710	2665	1260	275	4420	5955

[a] due to low sample sizes (i.e., N<2 angler interviews) in some strata, catches were estimated using combined CUPE's (i.e., all sites combined for each monthly period) for each species (data is from Appendices F11 and F12).

[b] Excluding incidental species.

[c] Brown trout are absent from the Crowsnest River above Lundbreck Falls; effort from CN7 was excluded from CPUE calculations for this species.

through privately owned land. The landowner at CN1 indicated that the anglers accessing the fishery through his property were primarily local residents.

The high use recorded in the UCN study section at Site CN6 reflects the proximity of the Lundbreck Falls Recreation Area. This campground, situated approximately 1.0 km off Highway 3, is a very popular fishing area for both local and transient fishermen. The estimated 1480 anglers fishing at this site from August to October represented 56% of the total using the entire Crowsnest River over the study period and 71% of the estimated total for the combined UCN study section (Table 8.7). The estimates of angler numbers and effort for the combined UCN sites each contributed 78% to their respective totals for the entire Crowsnest River.

Distribution of angler effort varied considerably among the various day-types and daily time periods examined; the relative amounts of effort expended within these strata are presented in Appendices F7 and F8. Angler effort (hours) expended during weekend/holiday (WE) day-types accounted for approximately 50% of the total estimated effort on the Crowsnest River, despite the fact that this day-type represented only 32% of the 92 survey days. Most angling activity during both regular weekday (WD) and WE day-types generally occurred in the afternoon (AFT) and evening (EVE) periods. A similar pattern of higher use on WE day-types and for evening periods has been observed previously in other creel surveys in Alberta (Hildebrand 1978; Hildebrand and Ash 1982).

Data obtained from anglers that had completed their angling activity indicated the mean length of a completed angler trip in August was similar for the LCN ($\bar{x}$ = 5.25 hours; N=10) and UCN ($\bar{x}$ = 5.12 hours; N=9) study sections (Appendices F7 and F8). The low number (N=4) of completed anglers interviewed from LCN in the Sep.-Oct. period prevented a comparison between study sections for this period. Completed anglers at UCN sites, however, fished for an average of 3.15 hours (N=13) in Sep.-Oct. The shorter completed trip in the Sep.-Oct. period was likely caused by a combination of weather and decreasing daylight hours. An examination of the weather conditions on sampled days in September and October indicate the majority of days presented poor weather conditions for angling (Appendices F3 and F4).

8.2.2 ANGLER CATCH

Estimates of total catch (i.e., fish kept plus fish released), by species, in the Crowsnest River are presented in Table 8.7. During the present study, approximately 6000 fish were caught by anglers in the Crowsnest River. Rainbow trout accounted for

74% of the estimated total catch (all sites combined) followed by mountain whitefish (21%) and brown trout (5%). The majority of the combined catch (74%) was taken from UCN sites. Site CN6 accounted for 68% of the total estimated catch from UCN sites and 51% of the estimated catch from UCN and LCN sites combined.

The proportion of the 1985 catch that was "kept" versus "released" is unknown; however, observations by the survey clerk indicated a large segment of the catch (particularly for rainbow trout and brown trout) consisted of small individuals that were released by anglers. The actual harvest (i.e., fish kept) by the anglers in the study area was not determined. Anglers fishing on the Bow River, released 65% of rainbow trout, 66% of brown trout, and 23% of mountain whitefish caught (Hildebrand and Ash 1982). Fishermen in the Bow River frequently indicated the reason for the high release rate was the perceived degree of sewage/pollution input into this system, particularly downstream of Calgary. This perception was not evident among the majority of Crowsnest River anglers and therefore, a larger percentage of the catch may have been kept.

A summary of catch and CPUE data from anglers interviewed on the Crowsnest River is presented in Appendices F11 and F12. Rainbow trout were the most abundant sportfish captured by anglers in the Crowsnest River during the present study. A total of 146 rainbow trout (74% of the total sportfish catch) were captured by anglers interviewed within the Crowsnest River study area, with 108 (74%) taken from UCN sites. The overall catch/angler for this species was 1.5 fish/angler for the LCN study section and 1.1 fish/angler for the UCN study section (Appendices F11 and F12). Overall CPUE (catch/hour) was similar (i.e., 0.4 fish/hour for LCN sites and UCN sites) between study sections. The highest monthly CPUE's (for sites with adequate sample sizes) were recorded during the Sep.-Oct. period at CN1 & 2 (0.8 fish/hour) and CN6 (0.7 fish/hour) in the LCN and UCN study sections respectively. At most sites, CPUE's for rainbow trout were considerably higher in the Sep.-Oct. period than in the August period. Reasons for this higher success rate were not apparent, although possibly related to the greater use by local (i.e., more experienced) anglers.

Mountain whitefish was the second most abundant species caught by anglers in the Crowsnest River. A total of 39 mountain whitefish were recorded, of which 31 (80%) were from UCN sites (Appendices F11 and F12). The majority of mountain whitefish were captured at CN6. The overall catch per angler and CPUE's for mountain whitefish were similar for the LCN and UCN study sections (i.e., 0.3 fish/angler and 0.1 fish/hour at both LCN and UCN sites. Both catch/angler and CPUE values for this species were higher at all sites during the Sep.-Oct. period. Since the estimated population of mountain whitefish in the Crowsnest River was lowest in the Sept.-Oct. period (Table 7.11), the higher angler success in this period may reflect a greater use by local (i.e., more experienced) anglers.

Brown trout were represented only occasionally in the angler catch from the Crowsnest River. Seven brown trout were captured by interviewed anglers, all from UCN sites CN4 and CN6. The majority (57%) were recorded at CN6 (Appendices F11 and F12). Results of electrofishing surveys (Section 7.1.1) indicated the highest concentrations of brown trout were recorded in section ES2, which is situated within the LCN section. The absence of brown trout from recorded angler creels in the LCN section likely reflects the low numbers of anglers interviewed in this section and the low success rate for this species. Brown trout are considerably more difficult to catch than rainbow trout or mountain whitefish and, as such, their estimated harvest underestimates their true relative abundance in the Crowsnest. Catch/angler and CPUE for brown trout, although considerably lower in comparison to the other two sportfish species, showed the same pattern of increased capture rates during the Sep.-Oct. period.

Cutthroat trout and bull trout made a minor contribution to the Crowsnest River catch (i.e., 2 cutthroat trout and 1 bull trout from CN6 and 1 bull trout from each of CN3, CN4, and CN7.

8.2.3 FACTORS INFLUENCING ANGLER EFFORT AND CATCH ESTIMATES

Several factors could have contributed to the formulation of biased estimates (i.e., over- or underestimation) of total angler effort and catch. The accuracy of estimates of total angler effort (i.e., total effort and total anglers) may have been influenced by 1) the duration of the selected daily sample periods relative to the available angling hours within the morning and evening daily time periods, 2) the accuracy of reported versus actual angler hours, and 3) the grouping of strata due to the absence of data or low sample sizes. A detailed discussion of each of these factors is presented in Appendix F1.

The combined effect of the preceding factors likely resulted in an overall underestimation of total angler effort in the Crowsnest River study section. A statistically valid estimate of the degree of underestimation could not be determined, however, on a "best guess" basis, estimates of total angler effort for the Crowsnest River study section during the August-October period may have been underestimated by 20 to 30%.

A potential source of bias, not directly related to the sampling methodology, is the possibility that angler use patterns recorded in 1985 do not accurately reflect the "typical" use of the study area during the August to October period. Numerous local anglers indicated they fished less in 1985 than in previous years due to the unseasonably cool and windy weather, particularly in the Sep.-Oct. period. An examination of weather conditions on creel survey days supports this contention, as the majority of days surveyed in this period were not conducive to angling (Appendices F3 and F4). This being the case, angler effort during the Aug.-Oct. period could be substantially higher during years with more seasonal weather.

8.2.4 COMPARISONS WITH OTHER TROUT FISHERIES

Anglers made frequent comparisons between the Crowsnest River and Bow River trout fisheries. In many regards, the Crowsnest River within the study area is similar to the Bow River downstream from Calgary. Both river systems 1) possess the same sportfish species assemblages, 2) exhibit a high productivity, and 3) receive extensive fishing pressure due to their high quality trout fisheries. The Bow River has been described as a world-class trout fishery. An intensive creel survey was conducted on the Bow River in 1982 (Hildebrand and Ash 1982). The results of this survey were compared to those obtained for the Crowsnest River (Table 8.8). It may not be valid to compare estimates of total angler numbers, total angler effort, and total catch, due to differences in sampling techniques, data analysis, survey periods/years, and stream size. Comparisons of CPUE and catch/angler, however, should be valid, as these parameters were determined directly from interviewed anglers.

The species distribution of the catch in the Bow River and Crowsnest River is similar (Table 8.8). In both systems, rainbow trout was the most abundant species followed by mountain whitefish and brown trout. In the present study, catch rates (CPUE and catch/angler) for rainbow trout and mountain whitefish were substantially higher in the Crowsnest River than those recorded in the Bow River in 1982.

Although the Bow River receives considerably more angler effort and total harvest is much greater than the Crowsnest River, the quality of the Crowsnest River fishery, in terms of angler success, is on a par with the world-class fishery on the Bow River.

Table 8.8 A comparison[a] of selected attributes of the recreational fisheries between the Crowsnest River (1985 data) and the Bow River (1982 data).

Parameter	**Bow River**	**Crowsnest River**[b]
No. of Surveyed Days	53	49
Survey Period	1 July to 15 Sep. 1982	1 Aug. to 31 Oct. 1985
Total Estimated Anglers	32 400	2 700
Total Estimated Angler Hours	94 900	10 700
Total Estimated Catch (all species)	28 100	6 000
Mountain Whitefish		
Composition of catch (%)	32%	21%
MW $\bar{x}$ CPUE	0.087	0.115
MW $\bar{x}$ catch/angler	0.161	0.314
Highest recorded catch/angler (period)	0.433 (Sep.)	0.447 (Sep.-Oct.)
Brown Trout		
Composition of catch (%)	8%	5%
BNT $\bar{x}$ CPUE	0.021	0.022
BNT $\bar{x}$ catch/angler	0.038	0.056
Highest recorded catch/angler (period)	0.216 (Sep.)	0.053 (Sep.-Oct.)
Rainbow Trout		
Composition of catch (%)	53%	74%
RT $\bar{x}$ CPUE	0.142	0.430
RT $\bar{x}$ catch/angler	0.261	1.177
Highest recorded catch/angler (period)	0.583 (Sep.)	1.868 (Sep.-Oct.)

[a] the validity of direct comparisons, particularly for estimates of total anglers, angler hours and catch are limited by differences in 1) the time periods surveyed, 2) the years sampled, and 3) data analysis and extrapolation procedures.

[b] Combined results of LCN and UCN study sections.

8.3 OLDMAN RIVER

8.3.1 ANGLER EFFORT

An estimated 1900 anglers fished for approximately 5900 hours in the Oldman River study section during the August-October period (Table 8.9). The highest use was recorded at OR1 (Summerview Bridge), situated downstream from the proposed damsite (Figure 3.2). Site OR1 contributed approximately 73% to both the angler numbers and angler effort estimates for all sites combined on the Oldman River (Table 8.9). The second highest angler use was recorded at OR3. As was the case in the Crowsnest River, pressure at all Oldman River sites was greatest (on a daily basis) during the August period (Appendix F9).

High angler use at site OR1 reflects the presence of a readily accessible, high quality pool. This pool habours large numbers of mountain whitefish (and reasonable numbers of rainbow trout) especially in the fall period (i.e., Sep.-Oct.). The remaining sites on the Oldman River received considerably lower use relative to OR1. This is likely explained by the absence of high quality holding areas in the immediate vicinity of the access site. During the preliminary creel survey in early August, additional access sites on the Oldman River above the proposed FSL were examined. These sites, designated OR4, OR5, and OR6 (Figure 3.2) were omitted from subsequent surveys due to low observed use and excessive travel time. Incidental observations made at these sites during electrofishing and habitat surveys in August, September, and October confirmed their low use by anglers.

Angler use at all Oldman River sites was greatest during WD day-types, in contrast to the Crowsnest River study sections where the majority of use occurred during WE periods (see Appendix F9). This difference likely reflects the predominantly local nature of the Oldman River fishery as opposed to the more tourist oriented fishery on the Crowsnest River. On the Oldman River, the highest daily use during both WD and WE day-types was recorded in the AFT time period.

The mean length of a completed angler trip at OR1 was 3.1 hours (N = 15). As all of the completed anglers were interviewed at this site and the interviews from all day-types and time periods were combined to produce a suitable sample size, differences in completed trip lengths between sites or monthly periods could not be determined.

Table 8.9 Estimates of angler effort, numbers, and catch from the Oldman River study section, August to October 1985.

Site	Month	Est. Total Effort (hours)	Est. Total Anglers	Estimated Catch (by species)[a]			
				Mountain whitefish	Brown trout	Rainbow trout	Combined[b] Catch
Below dam OR1	Aug.	1760	570	1760	25[c]	120	1905
	Sep.-Oct.	2590	830	4510	0	150	4660
	Total	4350	1400	6270	25	270	6565
Within FSL OR2	Aug.	560	180	535	0	125	660
	Sep.-Oct.	110	40	200	0	5	205
	Total	670	220	735	0	130	865
OR3	Aug.	780	250	740	0	170	910
	Sep.-Oct.	110[d]	60[d]	190	0	10	200
	Total	890	310	930	0	180	1110
OR2 & OR3	Aug.	1340	430	1275	0	295	1570
	Sep.-Oct.	220	100	390	0	15	405
	Total	1560	530	1665	0	310	1975
Oldman R. All Sites	Aug.	3100	1000	3035	25	415	3475
	Sep.-Oct.	2810	930	4900	0	165	5065
	Total	5910	1930	7935	25	580	8540

[a] due to low sample sizes (i.e., N<2 angler interviews) in some strata, catches at Sites OR2 and OR3 were estimated using combined CPUE's (i.e., all sites combined for each monthly period) for each species (data from Appendix F13).

[b] excluding incidental species.

[c] based on one brown trout capture.

[d] anglers were absent from this site in all surveyed periods in Sep.-Oct.; the total angler effort value was estimated using the ratio of total angler effort at OR2 between the August and the Sep.-Oct. periods (i.e., the effort at OR2 in the Sep.-Oct. period was 5.1 times lower than the August period; therefore, the August value at OR3 was divided by 5.1 to obtain an estimate for the Sep.-Oct. period). This same procedure was used to estimate total angler numbers for this strata.

8.3.2 ANGLER CATCH

Estimates of the total catch from the Oldman River are presented in Table 8.9. Anglers caught an estimated 8500 fish; mountain whitefish accounted for approximately 93% of the total catch, followed by rainbow trout (7%) and brown trout (less than 1%). Most of the combined catch (i.e., 77%) was taken from OR1.

A summary of catch and CPUE data from interviewed anglers on the Oldman River is presented in Appendix F13. Mountain whitefish made up the majority of the catch in the Oldman River study area. Of the 396 mountain whitefish captured by interviewed anglers in the study area, 386 (98%) were captured at OR1 (Appendix F13). Catch rates for this species at OR1 (the only site with a sufficient sample size) ranged from a low of 2.6 fish/angler and 1.0 fish/hour in August to a high of 4.8 fish/angler and 2.9 fish/hour in November. The high capture rates recorded in the fall period are a result of large concentrations of mountain whitefish in the area. The November survey was conducted on 2 and 3 November; a census clerk was stationed at OR1 for the majority of the day. In two days, 16 anglers fishing for 26.5 hours ($\bar{x}$ = 1.6 hours/angler) caught a total of 76 mountain whitefish. The relatively short trip duration was likely the result of adverse weather conditions at this time (i.e., cold and windy with periods of snow/sleet). The local Fish and Wildlife Officer (J. Allen, pers. comm.) indicated that on some days, up to 40 anglers have been recorded at OR1 during the fall "whitefish run" and that limit catches during this period were not uncommon.

Indications of angler use at OR1 were obtained by the authors in the fall of 1982 (O'Neil et al. 1982). At that time, mountain whitefish contributed 83% to the total catch from 51 interviewed anglers with rainbow trout comprising the remainder of the catch (17%); an estimated 6-8 anglers per day utilized the site in October. The present use rate of approximately 14 anglers/day for the Sep.-Oct. period suggests an increase in angler use has occurred at this site over the intervening 3 year time period, with mountain whitefish providing the primary basis for the fishery.

Rainbow trout were a relatively minor component of the catch. A total of 30 rainbow trout were captured by interviewed anglers, with 16 (53%) captured from OR1 (Appendix F13). The overall catch/angler and CPUE for this species was 0.3 fish/angler and 0.1 fish/hour respectively with the highest success rates recorded in August (i.e., 0.5 fish/angler and 0.2 fish/hour). The low numbers of anglers interviewed at OR2 and OR3 precluded comparisons of catch rates between sites. Rainbow trout capture rates in the Oldman River were approximately 4 to 5 times lower than catch rates in the Crowsnest River (Appendices F11, F12, and F13).

Brown trout were captured infrequently in the Oldman River study area. Only one brown trout was recorded in the present study, this individual being captured at OR1 (Appendix F13). The estimated catch of 25 brown trout at OR1, is considered to be a substantial overestimate. This level of harvest may more accurately reflect the catch for the entire Oldman River study section. Discussions with local anglers and results of electrofishing surveys in 1985, indicate brown trout are occasional residents in the Oldman River, particularly upstream of OR2.

8.3.3 FACTORS INFLUENCING ANGLER EFFORT AND CATCH ESTIMATES

Factors influencing the accuracy and precision of estimates are generally similar to those previously identified for the Crowsnest River study section and discussed in detail in Appendix F1.

In the Oldman River study section, the underestimation of angler effort from unsurveyed periods should be less than indicated for the Crowsnest River due to 1) the absence of a large campground on the Oldman River within the study area, and 2) the presence of a fishery consisting primarily of mountain whitefish on the Oldman River, and 3) indications that anglers fishing for this species did so mainly in the afternoon period (Appendix F9).

The combined effect of the preceding factors resulted in an overall underestimation for the Oldman River study section. The degree of underestimation was subjectively estimated at 10 to 20% for the total estimates of angler effort, angler numbers and catch.

8.4 CASTLE RIVER

8.4.1 ANGLER EFFORT

The Castle River exhibited the lowest angler pressure in the study area. An estimated 875 anglers fished for approximately 2000 hours in the Castle River during the August-October period (Table 8.10). The highest estimated use occurred at Castle River sites above the proposed FSL. The estimated 515 anglers fishing at CA5, contributed 59% to the estimated total (all Castle River sites combined). Sites CA1 and CA2 exhibited similar use patterns and angling conditions, and were both located within the proposed reservoir FSL. For this reason the results were combined to increase the sample size. The estimated 240 anglers at CA1 & 2 contributed 27% to the estimated

Table 8.10 Estimates of angler numbers, effort, and catch from the Castle River study section, August to October 1985.

				Estimated Catch (by species)[a]		
Site	**Month**	**Est. Total Effort (hours)**	**Est. Total Anglers**	**Mountain whitefish**	**Rainbow trout**	**Combined**[b] **Catch**
Lower Castle CA1&2	Aug.	230	100	440	20	460
	Sep.-Oct.	340	140	680	95	775
	Total	570	240	1120	115	1235
Upper Castle CA4	Aug.	115	50	220	10	230
	Sep.-Oct.[c]	170	70	340	50	390
	Total	285	120	560	60	620
CA5	Aug.	725	310	1390	55	1445
	Sep.-Oct.	480	205	960	140	1100
	Total	1205	515	2350	195	2545
Upper Castle Combined	Aug.	840	360	1610	65	1675
	Sep.-Oct.	650	275	1300	190	1490
	Total	1490	635	2910	255	3165
Castle River All Sites	Aug.	1070	460	2050	85	2135
	Sep.-Oct.	990	415	1980	285	2265
	Total	2060	875	4030	370	4400

[a] due to low sample sizes (i.e., N<2 angler interviews) in some strata, catches were estimated using combined CPUE's (i.e., all sites combined for each monthly period) for each species (data from Appendix F14).

[b] excluding incidental species.

[c] anglers were absent at this site in all surveyed periods in Sep.-Oct.; the total angler effort value was determined using the ratio of total angler effort at CA1&2 between the August and Sep.-Oct. periods (i.e., the effort at CA1 & 2 in the Sep.-Oct. period was 1.47 times greater than in the August period; therefore the August value at CA4 was multiplied by 1.47 to obtain an estimate for the Sep.-Oct. period). The same procedure was used for estimating total angler numbers for this strata.

total for all sites combined. Angler pressure at all sites was greatest during the August period (on a daily basis).

The low use of the lower Castle River (i.e., below FSL) results from limited public access; the majority of road access is through privately owned land with use limited mainly to local residents. Vehicle access to CA2 (located at the Highway 3 bridge crossing) is also through private land although access by footpath is available from the highway. The majority of anglers observed in the lower Castle River accessed the river at Site CA1. The low recorded use at CA4 (Castle River Recreation Area) is surprising considering the numbers of campers that were observed at this site.

The high use recorded at CA5 likely results from the presence of higher quality fish habitat, more aesthetic surroundings, and better public access than are present at the downstream access sites. The river at CA5 flows through a canyon section with numerous chutes, ledges, and large, deep pools. The area also is used as a local swimming hole.

In the August period, greatest effort was recorded during WD day-types; in the Sep.-Oct. period, the majority of effort was expended during WE day-types (see Appendix F10).

The mean length of a completed angler trip at CA5 was 2.33 hours (N=6, all day-types, month periods, and daily time periods combined) (Appendix F10). The length of a completed angler trip was not available for the other Castle River sites.

8.4.2 ANGLER CATCH

Anglers on the Castle River study section caught an estimated total of approximately 4400 fish (Table 8.10). Of these, 92% were mountain whitefish and 8% were rainbow trout. The majority (58%) of the combined catch (all sites combined) was taken at CA5.

A summary of catch and CPUE data from interviewed anglers on the Castle River is presented in Appendix F14. Mountain whitefish was the most abundant species caught in the Castle River study section (Table 8.10). A total of 39 mountain whitefish were captured, all at CA5 (Appendix F14). Highest catch rates for this species at this site were recorded in the August period (i.e., 6.2 fish/angler and 2.5 fish/hour). Capture rates decreased slightly in the Sep.-Oct. period. The success for mountain whitefish in the Castle river was considerably higher than that recorded for this species in the Crowsnest River and similar to that recorded in the Oldman River study section.

Rainbow trout were a relatively minor component of catches in the Castle River study section. A total of 3 rainbow trout (1 from CA4 and 2 from CA5) were captured by interviewed anglers (Appendix F14). These low values prevented comparisons of catch rates between sites and monthly time periods. The absence of angler interview data from CA1 & 2 results in an underestimation of rainbow trout captures at this site, as discussions with the landowners in the area indicated that this species was commonly caught in this area, particularly in spring and summer periods.

Cutthroat trout was the other sportfish species captured in the Castle River study section (i.e., 2 cutthroat trout from CA5). Interviewed anglers also indicated bull trout were occasionally taken from the system, particularly in the upper reaches (i.e., CA5).

8.4.3 FACTORS INFLUENCING ANGLER EFFORT AND CATCH ESTIMATES

The major factors influencing angler effort estimates on the Castle River are similar to those identified for the Crowsnest River and Oldman River study sections and discussed in Appendix F1. The degree of underestimation of angler effort and numbers in the Castle River may be in the order of 10-20% (i.e., similar to the Oldman River). For the reasons discussed in Appendix F1, however, estimates of catch from the Castle River may have been substantially overestimated (i.e., by 50% or more).

SECTION 9.0

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APPENDIX A

Terms of Reference

SCHEDULE OF TERMS OF REFERENCE

Service Agreement
CONSULTING

Between: - the Minister of the Environment -
and - RL&L Environmental Services Ltd. -
dated 16th September 1985 .

OLDMAN RIVER DAM ENVIRONMENTAL MITIGATION/OPPORTUNITIES PLAN ECOLOGICAL COMPONENT RESERVOIR AND TRIBUTARY STREAM FISHERIES ASSESSMENT

OBJECTIVE

1. Assess the riverine fisheries losses due to construction of the Oldman River dam.
2. Obtain instream habitat information from the Oldman, Crowsnest, and Castle Rivers above FSL that can be used to formulate enhancement scenarios.
3. Provide preliminary mitigation concepts for all three rivers above FSL.

STUDY LOCATION

The Oldman River dam is located in the foothills of southwestern Alberta. The attached map outlines the general location of the proposed reservoir and the location of the dam. The study will include:

a) The Castle River within the proposed reservoir and an equal distance upstream (approximately 10 km).

b) The Crownsest River within the reservoir and the river from FSL to the Lundbreck Falls.

c) The Oldman River from the dam to FSL and upstream of FSL for approximately 10 km.

STUDY REQUIREMENTS

The following statements give an indication of the level of detail required for the reservoir and tributary stream assessment studies and provide additional information on the schedule and the technical requirements of the program:

1. Collect data on fish species composition, distribution and abundance from the study area. Gather data on critical habitats that will be impacted by the reservoir such as spawning (relevant information from the 1985 movement and spring spawning study should be incorporated into the overall evaluation), rearing and overwintering locations. Special emphasis should be placed on the loss of critical habitats that may be important for the future maintenance of populations in stream reaches adjacent to the proposed reservoir. For example, spawning habitat of fall spawning species (e.g. brown trout, mountain whitefish) should be evaluated in sufficient detail to completely assess losses. If important spawning beds are located, the timing and duration of spawning activity at these sites should be documented and mapped. Carry out creel census through the summer and fall in the affected area in order to document the loss of stream fishing opportunities to the angling community. Provide a preliminary assessment of the fish populations likely to develop in or use the reservoir any time during the year (e.g. overwintering of stream fish).

2. Obtain data on the physical habitat in the Oldman, Crowsnest, and Castle Rivers in the study area. Identify what habitat elements are presently limiting fish populations in the area and determine if there are significant changes in limiting factors above and below FSL. Data should be gathered in sufficient detail that the information can be used to develop habitat enhancement scenarios designed to compensate for riverine habitat losses due to dam construction.
3. Incorporate all information on critical habitats, migration patterns, etc., into a final evaluation of possible mitigation concepts or strategies that would be practical in enhancing the fisheries in all three rivers above FSL.

LIAISON AND REPORTING

A start-up meeting with Alberta Environment and Fish & Wildlife Division in Edmonton will be required. The consultant should also be prepared to conduct on-site meetings as needed. Telephone or in-person reports will be expected over the course of the field study.

Three copies of the draft report must be submitted to the Planning Division, Alberta Environment by January 15, 1986. The final report, incorporating changes suggested by the reviewers, is to be submitted within one month of the receipt of Alberta Environment's deficiency statement regarding the draft final report. Ten bound copies and the unbound original camera-ready copy of the final report will be required. The camera-ready copy should include "xerox" reproducable originals, transparencies of oversized drawings, and negatives of any photographs used.

APPENDIX B

B1 - Stream Habitat Evaluation Procedures

B2 - Distribution and physical description of aquatic habitat in the Crowsnest River, 1985.

B3 - Distribution and physical description of aquatic habitat in the Oldman River, 1985.

B4 - Distribution and physical description of aquatic habitat in the Castle River, 1985.

Appendix B1

STREAM HABITAT EVALUATION

Habitat Type Description and Rating

A) Riffle - Portion of channel with increased velocity relative to Run and Pool habitat types; broken water surface due to effects of submerged or exposed bed materials; relatively shallow (less than 50 cm) during moderate to low flow periods.

Riffle (RF) - Typical riffle habitat type; limited submerged or overhead cover for juveniles and adult life stages; coarse substrate.

Riffle-Boulder garden (RF/BG) - Riffle habitat type with significant occurrence of large boulders; availability of significant instream cover for juveniles (to lesser extent adults) at moderate to high flow events.

B) Rapids (RA) - Portion of channel with highest velocity relative to other habitat types. Deeper than Riffle; often formed by channel constriction. Substrate extremely coarse; dominated by large cobble and boulder material. Instream cover provided in pocket eddies (P3) and associated with cobble/boulder substrate.

C) Run - Portion of channel characterized by moderate to high current velocity relative to Pool and Flat habitat; water surface largely unbroken. Deeper than Riffle habitat type. Can be diffentiated into four types: deep-slow, deep-fast, shallow-slow and shallow-fast.

Run (Class 1) (R1) - Highest quality Run habitat type. Maximum depth exceeding 1.5 m; average depth 1.25 m or greater. High instream cover at all flow conditions (submerged boulders/bedrock fractures, depth). Generally of deep-slow type (to lesser extent deep-fast) and situated proximal to upstream food production area (i.e., RF, R3).

Run (Class 2) (R2) - Moderate quality Run habitat type. Maximum depth reaching or exceeding 1.0 m but generally in order of 0.75 m. High instream cover during all but low flow events (baseflow). Generally of either deep-fast type or moderately deep-slow type.

Run (Class 2)/Boulder garden (R2/BG) - Moderate quality Run habitat type; presence of large boulders in channel; high instream cover (boulder, bedrock fractures, turbulence) at all but low-flow events (baseflow). Depth characteristics similar to R2; however required maximum depth lower due to cover afforded by boulders.

Run (Class 3) (R3) - Lowest quality Run habitat type. Maximum depth of 0.75 m but averaging only 0.5 m. Low instream cover at all but high flow events. Generally of shallow-fast or shallow-slow types.

Run (Class 3)/Boulder garden (R3/BG) - Similar to R3 in depth and velocity characteristics; presence of large boulders in channel offers improved instream cover during moderate and high flow events.

D) Flat (F1) - Area of channel characterized by low current velocities (relative to RF and Run cover types); near-laminar (i.e., non-turbulent) flow character. Depositional area featuring predominantly sand/silt substrate. Differentiated from Pool habitat type on basis of high channel uniformity and lack of direct riffle/run association. More depositional in nature than Run habitat (sand/silt substrate, lower food production, low cover, etc.).

E) Pool - Discrete portion of channel featuring increased depth and reduced velocity (downstream oriented) relative to Riffle and Run habitat types.

Pool (Class 1) (P1) - Highest quality Pool habitat type. Maximum depth exceeding 1.5 m; average depth 1.25 m or greater; high instream cover at all flow-conditions (submerged boulder, bedrock fractures, depth, bank irregularities). Generally featuring high Riffle and/or Run association (i.e., food input). Often intergrades with deep-slow type of R1.

Pool (Class 2) (P2) - Moderate quality Pool habitat type. Maximum depth reaching or exceeding 1.0 m but generally in order to 0.75 m. High instream cover at all but low flow events (baseflow).

Pool (Class 3) (P3) - Low quality pool habitat type. Maximum depth of 0.75 m but averaging only 0.5 m. Low instream cover at all but high flow events. Includes small pocket eddy type of habitat.

F) Features - Includes instream features that add to diversity and overall habitat quality.

Chutes (CH) - Areas of channel constriction; generally resulting in channel deepening and increased velocity. Associated habitat types are RA, R1, R2.

Ledges (LG) - Areas of bedrock intrusion into the channel; often creates Chutes and Pool habitat.

TABLE B2. Distribution and physical description of aquatic habitat in the Crowsnest River, October 1985.

UNIT NO.	TYPE	SECTION WIDTH (m)	SECTION LENGTH (m)	AREA (sq. m)
1	RA	16.5	235.0	3878
2	R2	18.5	115.0	2128
3	RA	18.5	45.0	833
4	R2	15.0	40.0	600
5	RA	19.0	35.0	665
6	CH	-	-	-
7	R2	23.5	115.0	2703
8	R3	22.5	95.0	2138
9	LG	-	-	-
10	RA/BG	21.5	175.0	3763
11	R3	27.5	210.0	5775
12	R1	18.5	75.0	1388
13	RA	16.0	130.0	2080
14	R1	18.5	50.0	925
15	RA	19.0	50.0	950
16	R3/BG	31.0	55.0	1705
17	R3	31.0	135.0	4185
18	R2	33.5	55.0	1843
19	RA	22.5	80.0	1800
20	P2	-	-	-
21	CH	-	-	-
22	P3	-	-	-
23	RF	26.5	430.0	11395
24	LG	-	-	-
25	R3	22.5	55.0	1238
26	R1	19.0	145.0	2755
27	R3	36.0	170.0	6120
28	R3	32.5	75.0	2438
29	R1	21.5	95.0	2043
30	P1	-	-	-
31	R2	22.5	80.0	1800
32	R3	25.0	80.0	2000
33	RF	27.5	55.0	1513
34	R3	23.5	60.0	1410
35	RF	24.0	50.0	1200
36	R3	31.0	110.0	3410
37	RF	28.5	130.0	3705
38	R2	24.0	35.0	840
39	R1	19.0	60.0	1140
40	RF	21.5	40.0	860
41	R3	19.0	135.0	2565
42	RF	26.0	85.0	2210
43	R2	30.0	90.0	2700
44	R1	20.0	70.0	1400
45	P1	-	-	-
46	RF	23.5	115.0	2703
47	R2/BG	25.0	115.0	2875
48	RA	21.5	25.0	538
49	R3	21.5	130.0	2795
50	RA	25.0	45.0	1125
51	RF	31.0	45.0	1395
52	R3	27.5	85.0	2338
53	R1	21.5	120.0	2580
54	P1	-	-	-
55	R3	26.0	205.0	5330
56	RF	24.0	265.0	6360
57	R2	15.0	50.0	750
58	RA	10.0	35.0	350
59	P2	-	-	-
60	CH	-	-	-
61	P2	-	-	-
62	R3	26.5	210.0	5565
63	R2	26.0	50.0	1300
64	RF	31.5	110.0	3465
65	R3	30.0	125.0	3750
66	R2	20.0	50.0	1000
67	RF	28.5	100.0	2850
68	R3	24.0	180.0	4320
69	RF	16.5	55.0	908
70	R3	22.5	90.0	2025
71	R1	21.5	115.0	2473
72	RF	21.5	70.0	1505
73	R3	24.0	145.0	3480
74	RA/BG	19.0	115.0	2185
75	R3	23.0	220.0	5060
76	RA/BG	12.5	50.0	625
77	LG	-	-	-
78	R3	15.0	80.0	1200
79	R2	10.0	40.0	400
80	RA/BG	15.0	105.0	1575
81	CH	-	-	-
82	R3	13.5	60.0	810
83	RF/BG	21.5	165.0	3548
84	R3	23.0	250.0	5750
85	RA	22.5	65.0	1463
86	CH	-	-	-
87	R2	16.5	25.0	413
88	RA	15.0	65.0	975
89	RF	24.0	65.0	1560
90	R3	27.5	80.0	2200
91	RF	30.0	205.0	6150
92	R3	26.0	170.0	4420
93	RA	22.5	90.0	2025
94	CH	-	-	-
95	RF/BG	27.5	195.0	5363
96	R1	21.5	130.0	2795
97	LG	-	-	-
98	R3	22.5	300.0	6750
99	R2	19.0	40.0	760
100	RF	26.5	190.0	5035
101	P3	-	-	-
102	R3	24.0	55.0	1320
103	RF	19.0	40.0	760
104	R2	20.0	35.0	700
105	R1	16.5	35.0	578
106	R3	20.0	20.0	400
107A	RF	21.5	105.0	2258
107B	RF	21.5	260.0	5590
108	R2	24.0	105.0	2520
109	R3	21.5	150.0	3225
110	RF	21.5	140.0	3010
111	R2	20.0	90.0	1800
112	RF	24.0	100.0	2400
113	CH	-	-	-
114	R3	23.0	290.0	6670
115	RF	26.5	195.0	5168
116	R2	21.0	290.0	6090
117	P2	-	-	-
118	R1	15.0	115.0	1725
119	R2	16.0	65.0	1040
120	RF	23.5	125.0	2938
121	P2	-	-	-
122	R2	18.5	75.0	1388
123	RF	19.0	80.0	1520
124	CH	-	-	-
125	R3	25.0	170.0	4250
126	RF	22.5	70.0	1575
127	R2	17.5	25.0	438
128	RF	23.0	35.0	805
129	CH	-	-	-
130	R2	25.0	25.0	625
131	R3	28.5	80.0	2280
132	RF/BG	26.5	95.0	2518
133	RA/BG	26.0	55.0	1430
134	CH	-	-	-
135	R3	22.5	410.0	9225
136	RF	20.0	145.0	2900
137	R3	23.5	145.0	3408
138	RF	19.0	50.0	950
139	R3	22.5	75.0	1688
140	RF	22.5	60.0	1350
141	R2	20.0	105.0	2100
142	RA/BG	20.0	190.0	3800
143	R3	20.0	95.0	1900
144	R1	20.0	110.0	2200
145	RA/BG	22.5	125.0	2813
146	R2	15.0	55.0	825
147	RA/BG	22.5	65.0	1463
148	R2	17.5	50.0	875
149	P3	-	-	-
150	R3/BG	17.5	60.0	1050
151	R3	20.0	55.0	1100
152	RA/BG	20.0	60.0	1200
153	P2	-	-	-
154	RA	20.0	60.0	1200
155	CH	-	-	-
156	R1	15.0	95.0	1425
157	RA/BG	25.0	230.0	5750
158	P2	-	-	-
159	LG	-	-	-
160	P2(2)	-	-	-
161	P2	-	-	-
162	R2/BG	22.5	95.0	2138
163	RA/BG	20.0	135.0	2700
164	R2	15.0	35.0	525
165	RA	22.5	55.0	1238
166	CH	-	-	-
167	R3	27.5	140.0	3850
168	LG	-	-	-
169	R3/BG	25.0	55.0	1375
170	P2	-	-	-
171	R2	20.0	50.0	1000
172	P2	-	-	-
173	RA	17.5	55.0	963
174	RF	20.0	55.0	1100
175	R2	17.5	20.0	350
176	RA	15.0	200.0	3000
177	CH	-	-	-
178	RF	15.0	145.0	2175
179	R2	12.5	35.0	438
180	P1	20.0	45.0	900
181	LG	-	-	-
182	R2	15.0	15.0	225
183	LG(#1)	-	-	-
184	RA/BG	22.5	95.0	2138
185	P1	-	-	-
186	P2	-	-	-
187	R2	22.5	20.0	450
188	RA/BG	25.0	35.0	875
189	P1	-	-	-
190	LG	-	-	-
191	R2	22.5	30.0	675
192	P2	-	-	-
193	LG	-	-	-
194	RA/BG	25.0	30.0	750

TABLE B2. Continued.

UNIT NO.	TYPE	SECTION WIDTH (m)	SECTION LENGTH (m)	AREA (sq. m)
195	P1	-	-	-
196	LG(#2)	-	-	-
197	R1	20.0	25.0	500
198	P2	-	-	-
199	LG(#3)	-	-	-
200	R2	25.0	35.0	875
201	R1	25.0	35.0	875
202	P1	-	-	-
203	R2	20.0	20.0	400
204	LG	-	-	-
205	R2	20.0	15.0	300
206	LG(#4)	-	-	-
207	RA/BG	25.0	35.0	875
208	R2	20.0	30.0	600
209	RA	25.0	25.0	625
210	LG	-	-	-
211	R2	15.0	20.0	300
212	RA	22.5	40.0	900
213	LG	-	-	-
214	R2	20.0	30.0	600
215	R1	20.0	35.0	700
216	P2	-	-	-
217	P2	-	-	-
218	RA/BG	12.5	105.0	1313
219	R2/BG	25.0	95.0	2375
220	R2	25.0	80.0	2000
221	RA/BG	20.0	95.0	1900
222	RA	25.0	15.0	375
223	R1	27.5	35.0	963
224	P1	15.0	20.0	300

TABLE B3. Distribution and physical description of aquatic habitat in the Oldman River, October 1985.

UNIT NO.	TYPE	SECTION WIDTH (m)	SECTION LENGTH (m)	AREA (sq. m)
1	R2	55.0	695.0	38225
2	RA/RF	40.0	340.0	13600
3	P2	-	-	-
4	R2	42.5	555.0	23588
5	RA	45.0	305.0	13725
6	R2	45.0	350.0	15750
7	RF	30.0	180.0	5400
8	R2	25.0	265.0	6625
9	RA	25.0	70.0	1750
10	CH	-	-	-
11	R3	45.0	135.0	6075
12	R2	47.5	415.0	19713
13	P2	-	-	-
14	RA	40.0	275.0	11000
15	R2	35.0	145.0	5075
16	R3	50.0	170.0	8500
17	R2	35.0	95.0	3325
18	RA	22.5	145.0	3263
19	CH	-	-	-
20	R2	25.0	240.0	6000
21	RA	17.5	80.0	1400
22	R2	42.5	160.0	6800
23	R1	35.0	120.0	4200
24	RA	45.0	135.0	6075
25	R2	55.0	145.0	7975
26	RA	42.5	195.0	8288
27	R2	50.0	570.0	28500
28	R1	30.0	90.0	2700
29	RA	17.5	85.0	1488
30	CH	-	-	-
31	R2	25.0	90.0	2250
32	RA	22.5	115.0	2588
33	R2	40.0	300.0	12000
34	RA/BG	25.0	125.0	3125
35	RF	40.0	275.0	11000
36	RF	25.0	670.0	16750
37	R3	40.0	195.0	7800
38	R1	35.0	165.0	5775
39	R2	30.0	250.0	7500
40	RA	35.0	350.0	12250
41	P2	-	-	-
42	CH	-	-	-
43	R3	50.0	80.0	4000
44	R1	30.0	595.0	17850
45	P2	-	-	-
46	RA	50.0	285.0	14250
47	R3	70.0	210.0	14700
48	RF	50.0	95.0	4750
49	R1	30.0	600.0	18000
50	P2	-	-	-
51	RA	45.0	100.0	4500
52	R3	60.0	75.0	4500
53	R2	55.0	190.0	10450
54	R1	35.0	120.0	4200
55	R2	35.0	120.0	4200
56	R1	10.0	95.0	950
57	P2	-	-	-
58	P3	-	-	-
59	RA	25.0	75.0	1875
60	R2	37.5	140.0	5250
61	R3	35.0	150.0	5250
62	RA	35.0	145.0	5075
63	R2	35.0	70.0	2450
64	R1	25.0	110.0	2750
65	R2	32.5	315.0	10238
66	P2	-	-	-
67	RA	37.5	195.0	7313
68	R2	35.0	365.0	12775
69	RA	40.0	130.0	5200
70	CH	-	-	-
71	R3	50.0	145.0	7250
72	R2	32.5	110.0	3575
73	R1	30.0	115.0	3450
74	RA	17.5	120.0	2100
75	LG,CH	-	-	-
76	R3	37.5	70.0	2625
77	R1	32.5	180.0	5850
78	RA	40.0	210.0	8400
79	CH	-	-	-
80	R2	45.0	75.0	3375
81	RA/BG	22.5	120.0	2700
82	RF	50.0	70.0	3500
83	R3	60.0	245.0	14700
84	RA	30.0	140.0	4200
85	R3	50.0	85.0	4250
86	R1	27.5	80.0	2200
87	RA	35.0	245.0	8575
88	LG(2)	-	-	-
89	R1	40.0	110.0	4400
90	RA/BG	27.5	185.0	5088
91	LG	-	-	-
92	R3	45.0	120.0	5400
93	R1	30.0	170.0	5100
94	P2(3)	-	-	-
95	RA/BG	35.0	430.0	15050
96	LG	-	-	-
97	P2	-	-	-
98	LG	-	-	-
99	RA	35.0	60.0	2100
100	R2	35.0	60.0	2100
101	R1	40.0	50.0	2000
102	RA	22.5	95.0	2138
103	LG	-	-	-
104	RA/RF	42.5	120.0	5100
105	R2	25.0	55.0	1375
106	R1	17.5	85.0	1488
107	RA	17.5	70.0	1225
108	P3	-	-	-
109	R1	15.0	105.0	1575
110	P3	-	-	-
111	P2(2)	-	-	-
112	RF	42.5	55.0	2338
113	RA	27.5	195.0	5363
114	CH	-	-	-
115	RF	50.0	60.0	3000
116	R1	17.5	130.0	2275
117	RA	30.0	135.0	4050
118	RF	30.0	325.0	9750
119	RA/RF	25.0	90.0	2250
120	RF	30.0	180.0	5400
121	P3	-	-	-
122	R1	20.0	155.0	3100
123	RA	25.0	190.0	4750
124	CH	-	-	-
125	RA/RF	30.0	150.0	4500
126	RA	20.0	110.0	2200
127	R1	20.0	75.0	1500
128	RA	20.0	110.0	2200
129	R2	40.0	300.0	12000
130	R1	25.0	130.0	3250
131	RA	25.0	295.0	7375
132	CH	-	-	-
133	R2	22.5	70.0	1575
134	RA	17.5	85.0	1488
135	CH	-	-	-
136	RF	35.0	215.0	7525
137	R3	30.0	75.0	2250
138	R1	20.0	160.0	3200
139	P1	20.0	35.0	700
140	RA	25.0	175.0	4375
141	CH	-	-	-
142	R1	22.5	175.0	3938
143	RF	30.0	360.0	10800
144	RF	17.5	730.0	12775
145	R1	25.0	430.0	10750
146	RF	30.0	150.0	4500
147	R2	20.0	160.0	3200
148	P1	-	-	-
149	RA/BG	15.0	60.0	900
150	RF	20.0	90.0	1800
151	RA	15.0	85.0	1275
152	CH	-	-	-
153	R1	17.5	195.0	3413
154	RA	10.0	110.0	1100
155	R1	15.0	240.0	3600
156	P2	-	-	-
157	RA	20.0	55.0	1100
158	RF	32.5	60.0	1950
159	R2	30.0	175.0	5250
160	RF	22.5	65.0	1463
161	R2	15.0	65.0	975
162	P2	-	-	-
163	R3	27.5	95.0	2613
164	RA	22.5	105.0	2363
165	RA/BG	45.0	110.0	4950
166	R2/BG	30.0	195.0	5850
167	RA/BG	22.5	150.0	3375
168	LG	-	-	-
169	LG	-	-	-
170	RF	20.0	35.0	700
171	R2	25.0	70.0	1750
172	RA	22.5	180.0	4050
173	R3	30.0	100.0	3000
174	CH	-	-	-
175	R2	100.0	27.5	2750
176A	R1	20.0	85.0	1700
176B	R1	20.0	20.0	400
177	RA	17.5	60.0	1050
178	CH	-	-	-
179	R3	35.0	175.0	6125
180	R2	20.0	70.0	1400
181	RF	30.0	75.0	2250
182	R2	22.5	95.0	2138
183	P3(2)	-	-	-
184	R1	15.0	100.0	1500
185	P3	-	-	-
186	P3	-	-	-
187	RF	22.5	90.0	2025
188	R2	20.0	105.0	2100
189	P3	-	-	-
190	LG	-	-	-
191	RA	20.0	160.0	3200
192	P3	-	-	-
193	LG	-	-	-
194	R2	22.5	90.0	2025

TABLE B3. Continued.

UNIT NO.	TYPE	SECTION WIDTH (m)	SECTION LENGTH (m)	AREA (sq. m)	UNIT NO.	TYPE	SECTION WIDTH (m)	SECTION LENGTH (m)	AREA (sq. m)	UNIT NO.	TYPE	SECTION WIDTH (m)	SECTION LENGTH (m)	AREA (sq. m)
195	R1	15.0	50.0	750	208	RA	22.5	65.0	1463	221	R3	45.0	55.0	2475
196	F2	-	-	-	209	CH	-	-	-	222	R1	15.0	55.0	825
197	R2	20.0	60.0	1200	210	R3	45.0	80.0	3600	223	R2	20.0	115.0	2300
198	RA/BG	37.5	115.0	4313	211	R2	25.0	75.0	1875	224	RA/BG	15.0	490.0	7350
199	R2	25.0	220.0	5500	212	R1	15.0	105.0	1575	225	R1	10.0	35.0	350
200	RA	17.5	280.0	4900	213	RA/BG	15.0	225.0	3375	226	P1	-	-	-
201	CH	-	-	-	214	CH	-	-	-	227	RA/BG	25.0	150.0	3750
202	R1	15.0	125.0	1875	215	CH	-	-	-	228	P2	-	-	-
203	R2	17.5	80.0	1400	216	RA	25.0	155.0	3875	229	R2	17.5	75.0	1313
204	RA	15.0	70.0	1050	217	R2	22.5	100.0	2250	230	RA	30.0	70.0	2100
205	CH	-	-	-	218	RA	20.0	40.0	800	231	R1	10.0	140.0	1400
206	RF	40.0	100.0	4000	219	R1	10.0	65.0	650	232	P1	-	-	-
207	R2	20.0	70.0	1400	220	RF	20.0	75.0	1500	233	RA	25.0	255.0	6375

TABLE B4. Distribution and physical description of aquatic habitat in the Castle River, October 1985.

UNIT NO.	TYPE	SECTION WIDTH (m)	SECTION LENGTH (m)	AREA (sq. m)	UNIT NO.	TYPE	SECTION WIDTH (m)	SECTION LENGTH (m)	AREA (sq. m)	UNIT NO.	TYPE	SECTION WIDTH (m)	SECTION LENGTH (m)	AREA (sq. m)
1	RA	20.0	225.0	4500	56	R1	30.0	80.0	2400	110	R1	15.0	145.0	2175
2	R1	15.0	75.0	1125	57	R2	35.0	70.0	2450	111	P2	-	-	-
3	RA	50.0	140.0	7000	58	RA	35.0	175.0	6125	112	CH	-	-	-
4	R1	35.0	140.0	4900	59	RF	45.0	55.0	2475	113	RA	37.5	95.0	3563
5	RA/BG	30.0	140.0	4200	60	R1	20.0	80.0	1600	114	RF	50.0	95.0	4750
6	R1	30.0	25.0	750	61	R3	30.0	80.0	2400	115	R3	50.0	295.0	14750
7	P1	25.0	35.0	875	62	R2	37.5	105.0	3938	116	RA	22.5	115.0	2588
8	R1	25.0	40.0	1000	63	RA	22.5	400.0	9000	117	R2	25.0	250.0	6250
9	RA	30.0	170.0	5100	63A	CH	-	-	-	118	RA	25.0	325.0	8125
10	P2	-	-	-	64	R3	30.0	140.0	4200	119	R2	27.5	90.0	2475
11	CH	-	-	-	65	R2	35.0	150.0	5250	120	RA	22.5	185.0	4163
12	R3	45.0	90.0	4050	66	R1	27.5	75.0	2063	121	CH	-	-	-
13	R1	30.0	200.0	6000	67	R2	20.0	130.0	2600	122	R2	32.5	195.0	6338
14	P3(2)	-	-	-	68	RA/BG	25.0	80.0	2000	123	R1	25.0	75.0	1875
15	RA	25.0	185.0	4625	69	R2	32.5	110.0	3575	124	R2	30.0	110.0	3300
16	RF	15.0	50.0	750	70	R1	27.5	110.0	3025	125	RA	35.0	165.0	5775
17	RA	20.0	155.0	3100	71	RF/RA	40.0	85.0	3400	126	CH	-	-	-
18	RA	20.0	110.0	2200	72	R2	50.0	110.0	5500	127	R2	30.0	105.0	3150
19	R3/BG	20.0	80.0	1600	73	R1	40.0	170.0	6800	128	RA	30.0	195.0	5850
20	R2/BG	35.0	360.0	12600	74	RA	25.0	150.0	3750	129	R2	40.0	165.0	6600
21	R2	25.0	95.0	2375	75	R2	22.5	80.0	1800	130	RA	45.0	125.0	5625
22	R1	20.0	55.0	1100	76	R1	15.0	180.0	2700	131	RF	50.0	150.0	7500
23	RA	20.0	50.0	1000	77	RA/BG	5.0	295.0	1475	132	R2	40.0	135.0	5400
24	RF	25.0	40.0	1000	78	P2(4)	-	-	-	133	R1	15.0	150.0	2250
25	P1	30.0	65.0	1950	79	RF/RA	12.5	440.0	5500	134	RF	50.0	145.0	7250
26	R2	20.0	120.0	2400	80	R1	15.0	160.0	2400	135	R2	30.0	45.0	1350
27	R3	20.0	75.0	1500	81	P1	15.0	160.0	2400	136	P2	-	-	-
28	R1	25.0	140.0	3500	82	RA	15.0	95.0	1425	137	R1	25.0	195.0	4875
29	RA	30.0	180.0	5400	83	CH	-	-	-	138	RA	30.0	355.0	10650
30	R2	35.0	65.0	2275	84	RF	35.0	55.0	1925	139	CH	-	-	-
31	RA	25.0	125.0	3125	85	R2	35.0	120.0	4200	140	CH	-	-	-
32	R2	30.0	85.0	2550	86	RA	27.5	140.0	3850	141	R2	35.0	150.0	5250
33	RA	30.0	105.0	3150	87	CH	-	-	-	142	RA	25.0	135.0	3375
34	RA	20.0	200.0	4000	88	R3	40.0	100.0	4000	143	CH	-	-	-
35	P3(3)	-	-	-	89	R1	25.0	145.0	3625	144	RF	55.0	35.0	1925
36	RF	35.0	175.0	6125	90	P3	-	-	-	145	R1	20.0	50.0	1000
37	R2	45.0	240.0	10800	91	RA	25.0	205.0	5125	146	R2	50.0	100.0	5000
38	RA	35.0	160.0	5600	92	CH	-	-	-	147	RF	40.0	95.0	3800
39	CH	-	-	-	93	R2	32.5	105.0	3413	148	R2	40.0	90.0	3600
40	CH	-	-	-	94	R3	40.0	60.0	2400	149	RA	25.0	95.0	2375
41	R2	17.5	160.0	2800	95	P3	-	-	-	150	R3	30.0	145.0	4350
42	RA	15.0	115.0	1725	96	R1	40.0	60.0	2400	151	R2	17.5	85.0	1488
43	CH	-	-	-	97	RA	22.5	240.0	5400	152	R1	10.0	40.0	400
44	P1	20.0	80.0	1600	98	CH	-	-	-	153	CH	-	-	-
45	R1	25.0	270.0	6750	99	CH	-	-	-	154	RA	32.5	475.0	15438
46	RA	27.5	100.0	2750	100	RF	30.0	125.0	3750	155	R2	10.0	65.0	650
47	CH	-	-	-	101	R1	20.0	25.0	500	156	R2	25.0	25.0	625
48	R2	22.5	45.0	1013	102	R2	40.0	90.0	3600	157	P1	15.0	45.0	675
49	R1	15.0	90.0	1350	103	LG	-	-	-	158	RA	25.0	225.0	5625
50	RA	32.5	175.0	5688	104	LG	-	-	-	159	LG	-	-	-
51	CH	-	-	-	105	RA/BG	27.5	485.0	13338	160	R2	20.0	100.0	2000
52	LG	-	-	-	106	RF	15.0	210.0	3150	161	RA	35.0	130.0	4550
53	R2	45.0	145.0	6525	107	RF	40.0	80.0	3200	162	LG	-	-	-
54	RA	37.5	285.0	10688	108	R2	22.5	195.0	4388	163	R2	20.0	60.0	1200
55	RA/BG	50.0	185.0	9250	109	P1	20.0	60.0	1200	164	RA	30.0	315.0	9450

APPENDIX C

Tagging Summary

C1 - Summary of tag numbers used in the study area.

C2 - Recapture summary.

Appendix C1 Summary of tagnumbers used in the Oldman River Dam Study Area by R.L. & L. Environmental Services Ltd. 1985.

Series	Color[a]	Tagging Dates	Tagging Locations
Alberta Environment Tags			
B001351-B001400	O	17 Aug. to 18 Aug.	Castle (ES1); Oldman (ES1)
B001451-B001700	O	18 Aug. to 22 Aug.	Oldman (ES1); Crowsnest (ES1; ES3; ES2)
B001401-B001450	O	20 Sep. to 21 Sep.	Crowsnest (CNP3)
B001701-B001750	O	21 Sep. to 3 Oct.	Crowsnest (CNP3); Castle (CAP1); Crowsnest (CNP3; CNP1); Oldman (OMP1)
B007951-B008000	O	3 Oct. to 4 Oct.	Oldman (OMP1); Crowsnest (ES2)
B007901-B007950	O	4 Oct. to 5 Oct.	Crowsnest (ES1; ES3)
B007851-B007900	O	5 Oct. to 17 Oct.	Crowsnest (ES3; ES3A); Castle (ES1)
B000876-B008900	O	17 Oct. to 19 Oct.	Crowsnest (CNP3); Oldman (ES1)
B001751-B001775	O	19 Oct.	Oldman (ES1)
R.L. & L. Environmental Services Ltd. Tags			
B004419-B004421	Y	20 Sep.	Crowsnest (CNP3)

[a] O = orange; Y = yellow.

Appendix C2 Summary of tagged fish recaptured in the Oldman River Dam Study Area by study personnel and anglers, 1985.

Species	Tag #	Release			Recapture			Net Movement (km)
		River	Date	Location (km)	River	Date	Location (km)	
RT	1404	CROW	20 Sep.	13.8	CROW	21 Sep.	13.6	
RT	1408	CROW	20 Sep.	13.2	CROW	24 Sep.	13.2	
RT	1409	CROW	20 Sep.	13.2	CROW	4 Oct.	6.7	-6.5
RT	1414	CROW	20 Sep.	13.0	CROW	21 Sep.	13.1	
RT	1417	CROW	20 Sep.	13.0	CROW	24 Sep.	13.2	
RT	1422	CROW	21 Sep.	13.8	CROW	24 Sep.	13.8	
RT	1436	CROW	21 Sep.	13.6	CROW	24 Sep.	13.7	
RT	1444	CROW	21 Sep.	13.4	CROW	5 Oct.	13.0	-0.4
RT	1446	CROW	21 Sep.	13.2	CROW	2 Oct.	4.5	-8.7
RT[b]	1482	CROW	19 Aug.	0.7	CROW	25 Sep.	N.D.	N.D.
RT	1502	CROW	20 Aug.	13.5	CROW	20 Sep.	13.3	
RT	1523	CROW	20 Aug.	12.6	CROW	4 Oct.	6.7	-5.9
RT[b]	1561	OLD	21 Aug.	346.3	OLD	1 Sep.	347.0	+0.7
RT[b]	1648	CROW	22 Aug.	6.3	CROW	1 Oct.	15.0	+8.7
RT	1677	CROW	22 Aug.	5.5	CROW	5 Oct.	13.0	+7.5
RT[b]	1702	CROW	20 Sep.	13.3	CROW	22 Oct.	15.0	+1.7
RT	1713	CROW	24 Sep.	13.8	CROW	5 Oct.	13.6	
RT	1713	CROW	5 Oct.	13.6	CROW	17 Oct.	13.3	-0.3
RT[b]	7910	CROW	4 Oct.	2.6	CROW	2 Nov.	6.0	+3.4
RT[c]	7925	CROW	4 Oct.	2.2	OLD	18 Oct.	309.6	-24.1
RT[b]	7940	CROW	4 Oct.	0.0	CROW	18 Oct.	1.0	+1.0
RT	7976	CROW	4 Oct.	6.7	CROW	17 Oct.	13.3	+6.6
BNT	1424	CROW	21 Sep.	13.8	CROW	4 Oct.	4.1	-9.7
BNT	1425	CROW	21 Sep.	13.8	CROW	24 Sep.	13.8	
BNT	1432	CROW	21 Sep.	13.8	CROW	24 Sep.	13.7	
BNT	1433	CROW	21 Sep.	13.8	CROW	24 Sep.	13.7	
BNT	1455	CROW	19 Aug.	4.1	CROW	4 Oct.	4.1	
BNT	1622	CROW	22 Aug.	7.1	CROW	20 Sep.	12.6	+5.5
BNT	1662	CROW	22 Aug.	5.8	CROW	4 Oct.	5.8	
MW[b]	1361	CAS	17 Aug.	10.4	OLD	Oct.	309.6	-27.6
MW	1515	CROW	20 Aug.	12.6	CROW	20 Sep.	13.3	+0.7
MW	1529	CROW	20 Aug.	12.6	CROW	21 Sep.	13.1	+0.5
MW	1531	CROW	20 Aug.	12.6	CROW	20 Sep.	13.0	+0.4
MW[b]	1552	OLD	21 Aug.	350.1	OLD	7 Sep.	345.0	-4.9
MW	1571	OLD	21 Aug.	348.0	OLD	19 Oct.	331.7	-16.3
MW[d]	5849	OLD	2 May	309.6	CAS	17 Aug.	10.4	+27.5

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[a] + = upstream movement; - = downstream movement; only movements > 0.3 km calculated.

[b] Recaptured by angler.

[c] Recaptured by angler; reported as a brown trout.

[d] Initially tagged by IEC Beak.

APPENDIX D

Life History Data

- Species abbreviations/codes
- Data printouts
    - by sample number
    - by species and location
    - by location and site
    - by tag number

OLDMAN RIVER DAM STUDY (UPSTREAM AREA)

FISHERIES DATA

1985

RL&L ENVIRONMENTAL SERVICES LTD
17312-106 AVE , EDMONTON, ALBERTA

RL&L ENVIRONMENTAL SERVICES LTD.
FISH SPECIES ABBREVIATIONS

ABBREV.	COMMON NAME	SCIENTIFIC NAME	ABBREV.	COMMON NAME	SCIENTIFIC NAME
RT	RAINBOW TROUT	/SALMO GAIRDNERI/	YW	WALLEYE	/STIZOSTEDION VITREUM/
SH	STEELHEAD	/SALMO GAIRDNERI/	SA	SAUGER	/STIZOSTEDION CANADENSE/
BNT	BROWN TROUT	/SALMO TRUTTA/	YP	YELLOW PERCH	/PERCA FLAVESCENS/
CT	CUTTHROAT TROUT	/SALMO CLARKI/	LING	BURBOT	/LOTA LOTA/
DV	DOLLY VARDEN	/SALVELINUS MALMA/	SS	SLIMY SCULPIN	/COTTUS COGNATUS/
LT	LAKE TROUT	/SALVELINUS NAMAYCUSH/	SHS	SPOONHEAD SCULPIN	/COTTUS RICEI/
AC	ARCTIC CHAR	/SALVELINUS ALPINUS/	PS	PRICKLY SCULPIN	/COTTUS ASPER/
BT	BROOK TROUT	/SALVELINUS FONTINALIS/	CS	COASTRANGE SCULPIN	/COTTUS ALEUTICUS/
AG	ARCTIC GRAYLING	/THYMALLUS ARCTICUS/	PSS	PACIFIC STAGHORN SCULPIN	/LEPTOCOTTUS ARMATUS/
MW	MOUNTAIN WHITEFISH	/PROSOPIUM WILLIAMSONI/	MS	MOTTLED SCULPIN	/COTTUS BAIRDI/
RW	ROUND WHITEFISH	/PROSOPIUM CYLINDRACEUM/	TS	TORRENT SCULPIN	/COTTUS RHOTHEUS/
PW	PYGMY WHITEFISH	/PROSOPIUM COULTERI/	BS	BROOK STICKLEBACK	/CULAEA INCONSTANS/
LW	LAKE WHITEFISH	/COREGONUS CLUPEAFORMIS/	NSS	NINESPINE STICKLEBACK	/PUNGITIUS PUNGITIUS/
BW	BROAD WHITEFISH	/COREGONUS NASUS/	TSS	THREESPINE STICKLEBACK	/GASTEROSTEUS ACULEATUS/
LC	CISCO	/COREGONUS ARTEDII/	RSS	REDSIDE SHINER	/RICHARDSONIUS BALTEATUS/
INC	INCONNU	/STENODUS LEUCICHTHYS/	NSF	NORTHERN SQUAWFISH	/PTYCHOCHEILUS OREGONENSIS/
PINK	PINK SALMON	/ONCORHYNCHUS GORBUSCHA/	PD	PEARL DACE	/SEMOTILUS MARGARITA/
CHUM	CHUM SALMON	/ONCORHYNCHUS KETA/	PM	PEAMOUTH	/MYLOCHEILUS CAURINUS/
COHO	COHO SALMON	/ONCORHYNCHUS KISUTCH/	FHC	FLATHEAD CHUB	/PLATYGOBIO GRACILIS/
SOCK	SOCKEYE SALMON	/ONCORHYNCHUS NERKA/	LKC	LAKE CHUB	/COUESIUS PLUMBEUS/
K	KOKANEE	/ONCORHYNCHUS NERKA/	LND	LONGNOSE DACE	/RHINICHTHYS CATARACTAE/
CHIN	CHINOOK SALMON	/ONCORHYNCHUS TSHAWYTSCHA/	FSD	FINESCALE DACE	/PFRILLE NEOGAEUS/
LNS	LONGNOSE SUCKER	/CATOSTOMUS CATOSTOMUS/	NRD	NORTHERN REDBELLY DACE	/CHROSOMUS EOS/
WS	WHITE SUCKER	/CATOSTOMUS COMMERSONI/	LD	LEOPARD DACE	/RHINICHTHYS FALCATUS/
LSS	LARGESCALE SUCKER	/CATOSTOMUS MACROCHEILUS/	ES	EMERALD SHINER	/NOTROPIS ATHERINOIDES/
BLS	BRIDGELIP SUCKER	/CATOSTOMUS COLUMBIANUS/	STS	SPOTTAIL SHINER	/NOTROPIS HUDSONIUS/
MNS	MOUNTAIN SUCKER	/CATOSTOMUS PLATYRHYNCHUS/	FHM	FATHEAD MINNOW	/PIMEPHALES PROMELAS/
CARP	CARP	/CYPRINUS CARPIO/	TP	TROUT-PERCH	/PERCOPSIS OMISCOMAYCUS/
CM	CHISELMOUTH	/ACROCHEILUS ALUTACEUS/	ID	IOWA DARTER	/ETHEOSTOMA EXILE/
SMB	SMALLMOUTH BASS	/MICROPTERUS DOLOMIEUI/	SF	STARRY FLOUNDER	/PLATICHTHYS STELLATUS/
LS	LAKE STURGEON	/ACIPENSER FULVESCENS/	LFS	LONGFIN SMELT	/SPIRINCHUS THALEICHTHYS/
WST	WHITE STURGEON	/ACIPENSER TRANSMONTANUS/	EU	EUALCHON	/THALEICHTHYS PACIFICUS/
GE	GOLDEYE	/HIODON ALOSOIDES/	PL	PACIFIC LAMPREY	/ENTOSPHENUS TRIDENTATUS/
NP	NORTHERN PIKE	/ESOX LUCIUS/	AL	ARCTIC LAMPREY	/LAMPETRA JAPONICA/
WBL	WESTERN BROOK LAMPREY	/LAMPETRA RICHARDSONI/	ACIS	ARCTIC CISCO	/COREGONUS AUTUMNALIS/
LCIS	LEAST CISCO	/COREGONUS SARDINELLA/			

CODE DESCRIPTIONS

SEX AND MATURITY DESCRIPTIONS

MALE	FEMALE	CLASS	DESCRIPTION
99		IMMATURE A -	SEX INDETERMINABLE DUE TO SMALL GONAD SIZE
01	11	IMMATURE B -	SMALL GONAD SIZE. FISH HAS NEVER SPAWNED AND WILL NOT SPAWN DURING THE COMING SPAWNING SEASON
02	12	MATURITY QUESTIONABLE -	SMALL GONAD SIZE. IT CANNOT BE DETERMINED IF FISH IS IMMATURE OR IF IT WILL SPAWN DURING THE COMING SPAWNING SEASON
03	13	DEVELOPING A -	DEFINITE GONAD DEVELOPMENT. FISH HAS NEVER SPAWNED BEFORE BUT WILL SPAWN DURING THE COMING SEASON.
04	14	DEVELOPING B -	DEFINITE GONAD DEVELOPMENT. THE FISH HAS SPAWNED BEFORE AND WILL SPAWN DURING THE COMING SEASON
05	15	DEVELOPING C -	DEFINITE GONAD DEVELOPMENT. THE FISH HAS SPAWNED BEFORE BUT WILL NOT SPAWN DURING THE COMING SPAWNING SEASON,I E ALTERNATE YEAR SPAWNERS
06	16	DEVELOPING D -	USED TO INDICATE DEFINITE GONAD DEVELOPMENT WHEN THE CLASSIFICATION INTO CATEGORIES "DEVELOPING A,B,OR C" CANNOT BE DETERMINED, OR WHEN SUCH A BREAKDOWN IS UNSUITABLE OR UNNECESSARY
07	17	GRAVID/FULLY DEVELOPED -	SEXUAL ORGANS FILL VENTRAL CAVITY TESTES WHITE. DROPS OF MILT FALL WITH PRESSURE. EGGS COMPLETELY ROUND. SOME ALREADY TRANSLUCENT
08	18	RIPE -	ROE OR MILT ARE EXTRUDED BY SLIGHT PRESSURE ON THE BELLY
09	19	SPENT -	SPAWNING COMPLETED. RESORPTION OF RESIDUAL OVARIAN TISSUE IS NOT YET COMPLETE
10	20	EXTERNAL -	SEX DETERMINED BY EXTERNAL CHARACTERISTICS; MATURITY AND SEX NOT VERIFIED BY GONAD EXAMINATION
97		ADULT -	BASED ON FISH SIZE. SEX NOT DETERMINED
98		JUVENILE -	BASED ON FISH SIZE. SEX NOT DETERMINED

OTHER CODES

CODE	AGEING METHODS	CODE	AGEING METHODS
SC	SCALES	CL	CLEITHRA
OT	OTOLITHS	CS	CLEITHRA AND SCALES
SO	SCALES AND OTOLITHS	VE	VERTEBRAE
FR	FIN RAY	OB	OTHER BONES
SF	SCALES AND FIN RAYS	LF	LENGTH FREQUENCY

CODE	CAPTURE METHODS (COL 33-34)
FD	FOUND DEAD
SL	SET LINE
DN	DIP NET
GN	GILL NET
ES	ELECTROSHOCKER - BOAT SHOCKER
EF	ELECTROFISHER - BACKPACK SHOCKER
BS	BEACH SEINE
PS	POLE SEINE
OB	OBSERVED - NOT CAPTURED
TU	TRAP - FISH MOVING UPSTREAM
TD	TRAP - FISH MOVING DOWNSTREAM
EX	EXPLOSIVES - SEISMIC OPERATION
AL	ANGLING (USING LURES)
AF	ANGLING (USING FLIES)
AB	ANGLING (USING BAIT)
CR	CREEL - SAMPLED FROM A FISHERMAN'S CREEL
CF	COMMERCIAL FISHERMAN'S CATCH
DF	DOMESTIC FISHERMAN'S CATCH
TO	TOXICANTS
TN	TANGLE NET
TR	TRAWL

CODE	TAG CODE (COL 38)
Y,W,R	COLOR CODE FOR TAG (I E YELLOW,WHITE,OR RED,ETC)
F	FIN CLIP 1=ADIPOSE, 2=R PECTORAL, 3=L PECTORAL 4=R PELVIC, 5=L PELVIC, 6=DORSAL, 9=FIN PUNCH

CODE	CAPTURE CODE (COL 60)
0	FIRST CAPTURE, RELEASED
1	FIRST CAPTURE, SACRIFICED
2	RECAPTURE, RELEASED
3	RECAPTURE, SACRIFICED

CODE	PRESERVATION CODE (COL 61)
1	WHOLE SPECIMEN PRESERVED
2	STOMACH ONLY PRESERVED
3	WHOLE SPECIMEN AND STOMACH PRESERVED SEPARATELY
4	STOMACH CONTENTS EVACUATED AND PRESERVED
5	GONADS PRESERVED
6	PARISITES PRESERVED
7	HEAD PRESERVED

*NOTE-SITE ABBREV. IS IN KM FROM CONFLUENCE WHERE APPLICABLE

OTHER CODES

LOCATION AND SITE ABBREVIATIONS

ABBREVIATION	DESCRIPTION
OLD	OLDMAN RIVER
CRO	CROWSNEST RIVER
CAS	CASTLE RIVER

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**********************************************
* FISHERIES DATA - PRINTOUT BY SAMPLE NUMBER *
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RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY SAMPLE NUMBER
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SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY MO YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
0 1	RT	211.		98		2	SC	ES			17 08 85	CAS	ES	1	0	
0 2	RT	115.		98		1	SC	ES			17 08 85	CAS	ES	1	0	
0 3	MW	148.		98				ES			17 08 85	CAS	ES	1	0	
0 4	MW	184.		98		2	SC	ES			17 08 85	CAS	ES	1	0	
0 5	MW	141.		98				ES			17 08 85	CAS	ES	1	0	
0 6	MW	133		98				ES			17 08 85	CAS	ES	1	0	
0 7	RT	285.				3	SC	ES		0 1351	17 08 85	CAS	ES	1	0	
0 8	DV	180.		98		1	SC	ES			17 08 85	CAS	ES	1	0	
0 9	MW	164.		98		2	SC	ES			17 08 85	CAS	ES	1	0	
0 10	MW	185.		98				ES			17 08 85	CAS	ES	1	0	
0 11	MW	116.		98		1	SC	ES			17 08 85	CAS	ES	1	0	
0 12	MW	157.		98		2	SC	ES			17 08 85	CAS	ES	1	0	
0 13	MW	122.		98				ES			17 08 85	CAS	ES	1	0	
0 14	MW	138.		98				ES			17 08 85	CAS	ES	1	0	
0 15	MW	115.		98				ES			17 08 85	CAS	ES	1	0	
0 16	MW	155.		98				ES			17 08 85	CAS	ES	1	0	
0 17	MW	176.		98				ES			17 08 85	CAS	ES	1	0	
0 18	MW	163.		98				ES			17 08 85	CAS	ES	1	0	
0 19	MW	125.		98				ES			17 08 85	CAS	ES	1	0	
0 20	LNS	138		98				ES			17 08 85	CAS	ES	1	0	
0 21	LNS	385		97				ES			17 08 85	CAS	ES	1	0	
0 22	RT	571		97			SC	ES		0 1353	17 08 85	CAS	ES	1	0	EST @ 5-6 lbs
0 23	MW	317.		97		7	SC	ES		0 1352	17 08 85	CAS	ES	1	0	
0 24	MW	372		97		8	SC	ES		0 1354	17 08 85	CAS	ES	1	0	
0 25	MW	307.						ES		0 1355	17 08 85	CAS	ES	1	0	
0 26	DV	193		98		2	SC	ES			17 08 85	CAS	ES	1	0	
0 27	MW	281				5	SC	ES		0 1356	17 08 85	CAS	ES	1	0	
0 28	MW	231						ES			17 08 85	CAS	ES	1	0	
0 29	RT	291				3	SC	ES		0 1357	17 08 85	CAS	ES	1	0	
0 30	MW	134		98				ES			17 08 85	CAS	ES	1	0	
0 31	MW	174		98				ES			17 08 85	CAS	ES	1	0	
0 32	MW	172		98				ES			17 08 85	CAS	ES	1	0	
0 33	MW	131		98				ES			17 08 85	CAS	ES	1	0	
0 34	MW	126		98				ES			17 08 85	CAS	ES	1	0	
0 35	MW	123		98				ES			17 08 85	CAS	ES	1	0	
0 36	MW	150		98				ES			17 08 85	CAS	ES	1	0	
0 37	MW	266						ES		0 1358	17 08 85	CAS	ES	1	0	
0 38	MW	239				3	SC	ES		0 1359	17 08 85	CAS	ES	1	0	
0 39	RT	219		98		2	SC	ES			17 08 85	CAS	ES	1	0	
0 40	MW	228		98				ES			17 08 85	CAS	ES	1	0	
0 41	MW	225		98				ES			17 08 85	CAS	ES	1	0	
0 42	MW	226		98				ES			17 08 85	CAS	ES	1	0	
0 43	MW	146		98				ES			17 08 85	CAS	ES	1	0	
0 44	MW	145		98				ES			17 08 85	CAS	ES	1	0	
0 45	MW	130		98				ES			17 08 85	CAS	ES	1	0	
0 46	MW	134		98				ES			17 08 85	CAS	ES	1	0	
0 47	MW	133		98				ES			17 08 85	CAS	ES	1	0	
0 48	MW	150		98				ES			17 08 85	CAS	ES	1	0	
0 49	MW	129		98				ES			17 08 85	CAS	ES	1	0	
0 50	MW	77		98		0	LF	ES			17 08 85	CAS	ES	1	0	
0 51	MW	72		98		0	LF	ES			17 08 85	CAS	ES	1	0	
0 52	MW	72		98		0	LF	ES			17 08 85	CAS	ES	1	0	
0 53	DV	237				2	SC	ES			17 08 85	CAS	ES	1	0	
0 54	RT	120		98				ES			17 08 85	CAS	ES	1	0	
0 55	MW	230				3	SC	ES			17 08 85	CAS	ES	1	0	
0 56	MW	178		98				ES			17 08 85	CAS	ES	1	0	
0 57	MW	172		98				ES			17 08 85	CAS	ES	1	0	
0 58	MW	139		98				ES			17 08 85	CAS	ES	1	0	
0 59	RT	218				2	SC	ES			17 08 85	CAS	ES	1	0	
0 60	MW	137		98				ES			17 08 85	CAS	ES	1	0	
0 61	RT	214				2	SC	ES			17 08 85	CAS	ES	1	0	
0 62	DV	317				3	SC	ES		0 1360	17 08 85	CAS	ES	1	0	
0 63	MW	86.		98		0	LF	ES			17 08 85	CAS	ES	1	0	
0 64	MW	280						ES		0 1361	17 08 85	CAS	ES	1	0	
0 65	MW	276						ES		0 1363	17 08 85	CAS	ES	1	0	
0 66	MW	260						ES		0 1364	17 08 85	CAS	ES	1	0	
0 67	RT	203				2	SC	ES			17 08 85	CAS	ES	1	0	
0 68	MW	253						ES		0 1365	17 08 85	CAS	ES	1	0	
0 69	MW	246						ES		0 1366	17 08 85	CAS	ES	1	0	
0 70	MW	265						ES		0 1367	17 08 85	CAS	ES	1	0	
0 71	MW	264						ES		0 1368	17 08 85	CAS	ES	1	0	
0 72	MW	230						ES		0 1369	17 08 85	CAS	ES	1	0	
0 73	MW	243						ES		0 1370	17 08 85	CAS	ES	1	0	
0 74	MW	235						ES			17 08 85	CAS	ES	1	0	
0 75	MW	221						ES		0 5849	17 08 85	CAS	ES	1	2	
0 76	MW	213		98				ES			17 08 85	CAS	ES	1	0	
0 77	MW	214		98				ES			17 08 85	CAS	ES	1	0	
0 78	MW	202		98				ES			17 08 85	CAS	ES	1	0	
0 79	MW	221		98				ES			17 08 85	CAS	ES	1	0	
0 80	MW	190		98				ES			17 08 85	CAS	ES	1	0	
0 81	MW	186		98				ES			17 08 85	CAS	ES	1	0	
0 82	MW	216		98				ES			17 08 85	CAS	ES	1	0	
0 83	MW	185		98				ES			17 08 85	CAS	ES	1	0	
0 84	MW	198		98				ES			17 08 85	CAS	ES	1	0	
0 85	MW	198		98				ES			17 08 85	CAS	ES	1	0	
0 86	MW	220		98				ES			17 08 85	CAS	ES	1	0	
0 87	MW	131		98				ES			17 08 85	CAS	ES	1	0	
0 88	MW	142		98				ES			17 08 85	CAS	ES	1	0	
0 89	MW	133		98				ES			17 08 85	CAS	ES	1	0	
0 90	MW	147		98				ES			17 08 85	CAS	ES	1	0	
0 91	MW	125		98				ES			17 08 85	CAS	ES	1	0	
0 92	MW	150		98				ES			17 08 85	CAS	ES	1	0	
0 93	MW	141		98				ES			17 08 85	CAS	ES	1	0	
0 94	MW	169		98				ES			17 08 85	CAS	ES	1	0	
0 95	MW	138		98				ES			17 08 85	CAS	ES	1	0	
0 96	MW	187		98				ES			17 08 85	CAS	ES	1	0	
0 97	MW	153		98				ES			17 08 85	CAS	ES	1	0	
0 98	MW	300		97				ES		0 1373	17 08 85	CAS	ES	1	0	
0 99	MW	266		97				ES		0 1374	17 08 85	CAS	ES	1	0	
0 100	RT	220				2	SC	ES			17 08 85	CAS	ES	1	0	
0 101	RT	222				2	SC	ES		0 1371	17 08 85	CAS	ES	1	0	
0 102	RT	215					SC	ES			17 08 85	CAS	ES	1	0	
0 103	RT	223				3	SC	ES		0 1375	17 08 85	CAS	ES	1	0	
0 104	RT	230				2	SC	ES		0 1362	17 08 85	CAS	ES	1	0	
0 105	MW	201.						ES			17 08 85	CAS	ES	1	0	
0 106	MW	333.						ES			17 08 85	CAS	ES	1	0	
0 107	MW	178.						ES			17 08 85	CAS	ES	1	0	
0 108	MW	188.						ES			17 08 85	CAS	ES	1	0	
0 109	MW	141.						ES			17 08 85	CAS	ES	1	0	
0 110	MW	184.						ES			17 08 85	CAS	ES	1	0	
0 111	MW	188.						ES			17 08 85	CAS	ES	1	0	
0 112	MW	188.						ES			17 08 85	CAS	ES	1	0	

RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY SAMPLE NUMBER

SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY	MO	YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
D 113	MW	219.						ES			17	08	85	CAS	ES	1	0	
D 114	MW	198.						ES			17	08	85	CAS	ES	1	0	
D 115	MW	144.						ES			17	08	85	CAS	ES	1	0	
D 116	MW	200.						ES			17	08	85	CAS	ES	1	0	
D 117	MW	126.						ES			17	08	85	CAS	ES	1	0	
D 118	MW	128.						ES			17	08	85	CAS	ES	1	0	
D 119	MW	147.						ES			17	08	85	CAS	ES	1	0	
D 120	MW	116.						ES			17	08	85	CAS	ES	1	0	
D 121	RT	121.				1	SC	ES			17	08	85	CAS	ES	1	0	
D 122	RT	257.				2	SC	ES		D 1376	18	08	85	OLD	ES	1	0	
D 123	RT	280.				2	SC	ES		D 1377	18	08	85	OLD	ES	1	0	
D 124	RT	238.				2	SC	ES		D 1378	18	08	85	OLD	ES	1	0	
D 125	RT	217.					SC	ES			18	08	85	OLD	ES	1	0	
D 126	RT	233.				2	SC	ES		D 1379	18	08	85	OLD	ES	1	0	
D 127	RT	237.					SC	ES		D 1380	18	08	85	OLD	ES	1	0	
D 128	DV	209.				2	SC	ES			18	08	85	OLD	ES	1	0	
D 129	RT	177.				2	SC	ES			18	08	85	OLD	ES	1	0	
D 130	RT	227.					SC	ES		D 1381	18	08	85	OLD	ES	1	0	
D 131	RT	120.				1	SC	ES			18	08	85	OLD	ES	1	0	
D 132	RT	432.	1220			4	SC	ES		D 1382	18	08	85	OLD	ES	1	0	
D 133	MW	183.						ES			18	08	85	OLD	ES	1	0	
D 134	MW	144.						ES			18	08	85	OLD	ES	1	0	
D 135	MW	141.						ES			18	08	85	OLD	ES	1	0	
D 136	MW	165.						ES			18	08	85	OLD	ES	1	0	
D 137	RT	132.					SC	ES			18	08	85	OLD	ES	1	0	
D 138	MW	357.	580			7	SC	ES		D 1383	18	08	85	OLD	ES	1	0	
D 139	RT	263.	220			3	SC	ES		D 1384	18	08	85	OLD	ES	1	0	
D 140	RT	227.	160				SC	ES		D 1385	18	08	85	OLD	ES	1	0	
D 141	RT	318.	480			3	SC	ES		D 1386	18	08	85	OLD	ES	1	0	
D 142	RT	201.	100				SC	ES			18	08	85	OLD	ES	1	0	
D 143	RT	159.	45				SC	ES			18	08	85	OLD	ES	1	0	
D 144	RT	208.	100				SC	ES			18	08	85	OLD	ES	1	0	
D 145	BNT	321.	480			2	SC	ES		D 1387	18	08	85	OLD	ES	1	0	
D 146	RT	177.	60			1	SC	ES			18	08	85	OLD	ES	1	0	
D 147	RT	205.	130				SC	ES			18	08	85	OLD	ES	1	0	
D 148	RT	227.	160				SC	ES		D 1388	18	08	85	OLD	ES	1	0	
D 149	RT	174.						ES			18	08	85	OLD	ES	1	0	
D 150	RT	186.	80				SC	ES			18	08	85	OLD	ES	1	0	
D 151	RT	204.	130				SC	ES			18	08	85	OLD	ES	1	0	
D 152	RT	199.	90				SC	ES			18	08	85	OLD	ES	1	0	
D 153	RT	172.	70				SC	ES			18	08	85	OLD	ES	1	0	
D 154	RT	196.	90				SC	ES			18	08	85	OLD	ES	1	0	
D 155	RT	183.	90				SC	ES			18	08	85	OLD	ES	1	0	
D 156	MW	204.	100			2	SC	ES			18	08	85	OLD	ES	1	0	
D 157	MW	152.	50			1	SC	ES			18	08	85	OLD	ES	1	0	
D 158	MW	145.	30					ES			18	08	85	OLD	ES	1	0	
D 159	MW	188.	75					ES			18	08	85	OLD	ES	1	0	
D 160	MW	157.	35					ES			18	08	85	OLD	ES	1	0	
D 161	MW	158.	40					ES			18	08	85	OLD	ES	1	0	
D 162	MW	136.	25					ES			18	08	85	OLD	ES	1	0	
D 163	MW	132.	25					ES			18	08	85	OLD	ES	1	0	
D 164	MW	150.	35					ES			18	08	85	OLD	ES	1	0	
D 165	RT	142.	30	99		1	SD	ES			18	08	85	OLD	ES	1	1	
D 166	MW	86.				0	LF	ES			18	08	85	OLD	ES	1	0	
D 167	RT	245.	220				SC	ES		D 1390	18	08	85	OLD	ES	1	0	
D 168	MW	300.	410			5	SC	ES		D 1389	18	08	85	OLD	ES	1	0	
D 169	RT	213.	140				SC	ES			18	08	85	OLD	ES	1	0	
D 170	RT	195.	100				SC	ES			18	08	85	OLD	ES	1	0	
D 171	RT	141.	40				SC	ES			18	08	85	OLD	ES	1	0	
D 172	MW	152.						ES			18	08	85	OLD	ES	1	0	
D 173	MW	171.						ES			18	08	85	OLD	ES	1	0	
D 174	MW	83.				0	LF	ES			18	08	85	OLD	ES	1	0	
D 175	RT	117.	20				SC	ES			18	08	85	OLD	ES	1	0	
D 176	MW	327.	400			6	SC	ES		D 1391	18	08	85	OLD	ES	1	0	
D 177	RT	217.	140				SC	ES			18	08	85	OLD	ES	1	0	
D 178	RT	215.	130				SC	ES			18	08	85	OLD	ES	1	0	
D 179	RT	254.	220			2	SC	ES		D 1392	18	08	85	OLD	ES	1	0	
D 180	RT	252.	225				SC	ES		D 1393	18	08	85	OLD	ES	1	0	
D 181	RT	242.	200				SC	ES		D 1394	18	08	85	OLD	ES	1	0	
D 182	RT	240.	220				SC	ES		D 1395	18	08	85	OLD	ES	1	0	
D 183	RT	218.	140				SC	ES			18	08	85	OLD	ES	1	0	
D 184	RT	235.	160				SC	ES		D 1396	18	08	85	OLD	ES	1	0	
D 185	RT	178.	80				SC	ES			18	08	85	OLD	ES	1	0	
D 186	RT	125.	20			1	SC	ES			18	08	85	OLD	ES	1	0	
D 187	RT	140.	25				SC	ES			18	08	85	OLD	ES	1	0	
D 188	RT	164.	50			1	SD	ES			18	08	85	OLD	ES	1	1	
D 189	MW	210.	140					ES			18	08	85	OLD	ES	1	0	
D 190	MW	172.	40					ES			18	08	85	OLD	ES	1	0	
D 191	MW	209.	110					ES			18	08	85	OLD	ES	1	0	
D 192	MW	143.	20					ES			18	08	85	OLD	ES	1	0	
D 193	MW	144.	20					ES			18	08	85	OLD	ES	1	0	
D 194	MW	141.	20					ES			18	08	85	OLD	ES	1	0	
D 195	MW	180.	60					ES			18	08	85	OLD	ES	1	0	
D 196	MW	197.	80					ES			18	08	85	OLD	ES	1	0	
D 197	RT	148.					SC	ES			18	08	85	OLD	ES	1	0	
D 198	MW	138.	30					ES			18	08	85	OLD	ES	1	0	
D 199	BNT	323.	480			2	SC	ES		D 1397	18	08	85	OLD	ES	1	0	
D 200	RT	352.	700			3	SC	ES		D 1398	18	08	85	OLD	ES	1	0	
D 201	RT	275.	310			2	SC	ES		D 1400	18	08	85	OLD	ES	1	0	
D 202	RT	260.	240				SC	ES		D 1399	18	08	85	OLD	ES	1	0	
D 203	RT	214.	140				SC	ES			18	08	85	OLD	ES	1	0	
D 204	RT	249.	240					ES		D 1451	18	08	85	OLD	ES	1	0	
D 205	RT	201.	130					ES			18	08	85	OLD	ES	1	0	
D 206	RT	205.	125					ES			18	08	85	OLD	ES	1	0	
D 207	RT	219.	150					ES			18	08	85	OLD	ES	1	0	
D 208	RT	199.	110					ES			18	08	85	OLD	ES	1	0	
D 209	RT	204.	140					ES			18	08	85	OLD	ES	1	0	
D 210	RT	247.	180					ES			18	08	85	OLD	ES	1	0	
D 211	RT	234.	180					ES		D 1452	18	08	85	OLD	ES	1	0	
D 212	RT	172.	50					ES		D 1453	18	08	85	OLD	ES	1	0	
D 213	RT	132.	20					ES			18	08	85	OLD	ES	1	0	
D 214	RT	126.						ES			18	08	85	OLD	ES	1	0	
D 215	RT	177.						ES			18	08	85	OLD	ES	1	0	
D 216	RT	133.						ES			18	08	85	OLD	ES	1	0	
D 217	RT	192.						ES			18	08	85	OLD	ES	1	0	
D 218	MW	246.						ES			18	08	85	OLD	ES	1	0	
D 219	MW	211.	120					ES			18	08	85	OLD	ES	1	0	
D 220	MW	182.	60					ES			18	08	85	OLD	ES	1	0	
D 221	MW	157.	30					ES			18	08	85	OLD	ES	1	0	
D 222	MW	155.						ES			18	08	85	OLD	ES	1	0	
D 223	MW	126.						ES			18	08	85	OLD	ES	1	0	
D 224	MW	134.						ES			18	08	85	OLD	ES	1	0	

RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY SAMPLE NUMBER

SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY MO YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
0 225	MW	183.						ES			18 08 85	OLD	ES 1	0		
0 226	MW	165.						ES			18 08 85	OLD	ES 1	0		
0 227	RT	115.						ES			18 08 85	OLD	ES 1	0		
0 228	RT	108.						ES			18 08 85	OLD	ES 1	0		
0 229	RT	181.						ES			18 08 85	OLD	ES 1	0		
0 230	MW	265.	260.					ES		0 1454	19 08 85	CRO	ES 2	0		
0 231	MW	160.	50.					ES			19 08 85	CRO	ES 2	0		
0 232	MW	190.	90.					ES			19 08 85	CRO	ES 2	0		
0 233	BNT	356.	700.			2	SC	ES		0 1455	19 08 85	CRO	ES 2	0		
0 234	BNT	457.	1380.			3	SC	ES		0 1456	19 08 85	CRO	ES 2	0		
0 235	RT	378.	700.			3	SC	ES		0 1457	19 08 85	CRO	ES 2	0		
0 236	RT	336.	600.				SC	ES		0 1458	19 08 85	CRO	ES 2	0		
0 237	BNT	542.	2440.			5	SC	ES		0 1459	19 08 85	CRO	ES 2	0		
0 238	RT	454.	1500.			4	SC	ES		0 1460	19 08 85	CRO	ES 2	0		
0 239	RT	275.	290.				SC	ES		0 1461	19 08 85	CRO	ES 2	0		
0 240	MW	184.	70.					ES			19 08 85	CRO	ES 2	0		
0 241	MW	192.	70.					ES			19 08 85	CRO	ES 2	0		
0 242	MW	214.	140.					ES			19 08 85	CRO	ES 1	0		
0 243	MW	213.	140.					ES			19 08 85	CRO	ES 1	0		
0 244	MW	260.	240.					ES		0 1462	19 08 85	CRO	ES 1	0		
0 245	MW	200.	100					ES			19 08 85	CRO	ES 1	0		
0 246	MW	180.	60.					ES			19 08 85	CRO	ES 1	0		
0 247	MW	171.	70.					ES			19 08 85	CRO	ES 1	0		
0 248	MW	246.	200.					ES		0 1463	19 08 85	CRO	ES 1	0		
0 249	MW	206.	120.					ES			19 08 85	CRO	ES 1	0		
0 250	MW	151.	30					ES			19 08 85	CRO	ES 1	0		
0 251	MW	212.	110					ES			19 08 85	CRO	ES 1	0		
0 252	MW	122.	20.					ES			19 08 85	CRO	ES 1	0		
0 253	MW	252.	230					ES		0 1464	19 08 85	CRO	ES 1	0		
0 254	MW	240	180.					ES		0 1465	19 08 85	CRO	ES 1	0		
0 255	MW	206.						ES			19 08 85	CRO	ES 1	0		
0 256	MW	244.						ES			19 08 85	CRO	ES 1	0		
0 257	MW	173.						ES			19 08 85	CRO	ES 1	0		
0 258	MW	220						ES			19 08 85	CRO	ES 1	0		
0 259	MW	208.						ES			19 08 85	CRO	ES 1	0		
0 260	MW	163.						ES			19 08 85	CRO	ES 1	0		
0 261	MW	152						ES			19 08 85	CRO	ES 1	0		
0 262	MW	171.						ES			19 08 85	CRO	ES 1	0		
0 263	MW	231						ES			19 08 85	CRO	ES 1	0		
0 264	MW	199.						ES			19 08 85	CRO	ES 1	0		
0 265	MW	204.						ES			19 08 85	CRO	ES 1	0		
0 266	MW	221						ES			19 08 85	CRO	ES 1	0		
0 267	MW	156						ES			19 08 85	CRO	ES 1	0		
0 268	MW	169						ES			19 08 85	CRO	ES 1	0		
0 269	RT	282.	300.				SC	ES		0 1466	19 08 85	CRO	ES 1	0		
0 270	RT	261.	290.				SC	ES		0 1467	19 08 85	CRO	ES 1	0		
0 271	RT	202.	140.				SC	ES			19 08 85	CRO	ES 1	0		
0 272	RT	140.	40.			1	SC	ES			19 08 85	CRO	ES 1	0		
0 273	RT	359.	800.				SC	ES		0 1468	19 08 85	CRO	ES 1	0		
0 274	RT	277.	325				SC	ES		0 1469	19 08 85	CRO	ES 1	0		
0 275	RT	241.	220.			1	SC	ES		0 1471	19 08 85	CRO	ES 1	0		
0 276	RT	355.	620			3	SC	ES		0 1470	19 08 85	CRO	ES 1	0		
0 277	MW	228.	180					ES			19 08 85	CRO	ES 1	0		
0 278	MW	225.	160.					ES			19 08 85	CRO	ES 1	0		
0 279	MW	221.	150.					ES			19 08 85	CRO	ES 1	0		
0 280	MW	226	170					ES			19 08 85	CRO	ES 1	0		
0 281	MW	208	100.					ES			19 08 85	CRO	ES 1	0		
0 282	MW	210.	100.					ES			19 08 85	CRO	ES 1	0		
0 283	MW	203.	90.					ES			19 08 85	CRO	ES 1	0		
0 284	MW	213.	120.					ES			19 08 85	CRO	ES 1	0		
0 285	MW	201.						ES			19 08 85	CRO	ES 1	0		
0 286	MW	216.	140.					ES			19 08 85	CRO	ES 1	0		
0 287	MW	220.	150.					ES			19 08 85	CRO	ES 1	0		
0 288	MW	204.	110.					ES			19 08 85	CRO	ES 1	0		
0 289	MW	212.	140.					ES			19 08 85	CRO	ES 1	0		
0 290	MW	184.	100.					ES			19 08 85	CRO	ES 1	0		
0 291	MW	182	100					ES			19 08 85	CRO	ES 1	0		
0 292	RT	150.	50.				SC	ES			19 08 85	CRO	ES 1	0		
0 293	MW	180						ES			19 08 85	CRO	ES 1	0		
0 294	MW	210.						ES			19 08 85	CRO	ES 1	0		
0 295	MW	171						ES			19 08 85	CRO	ES 1	0		
0 296	MW	209						ES			19 08 85	CRO	ES 1	0		
0 297	MW	193	120					ES			19 08 85	CRO	ES 1	0		
0 298	MW	180						ES			19 08 85	CRO	ES 1	0		
0 299	MW	211						ES			19 08 85	CRO	ES 1	0		
0 300	MW	202						ES			19 08 85	CRO	ES 1	0		
0 301	MW	209						ES			19 08 85	CRO	ES 1	0		
0 302	MW	218						ES			19 08 85	CRO	ES 1	0		
0 303	MW	215						ES			19 08 85	CRO	ES 1	0		
0 304	MW	144						ES			19 08 85	CRO	ES 1	0		
0 305	RT	20[illegible].	100				SC	ES			19 08 85	CRO	ES 1	0		
0 306	RT	[illegible]23.				1	SC	ES		0 1472	19 08 85	CRO	ES 1	0		
0 307	MW	136						ES			19 08 85	CRO	ES 1	0		
0 308	MW	250.	210	16			SC	ES			19 08 85	CRO	ES 1	0		
0 30[illegible]	MW	211.	130	11		2	SC	ES			19 08 85	CRO	ES 1	0		
0 31[illegible]	MW	204	110	11		2	SC	ES			19 08 85	CRO	ES 1	0		
0 311	MW	175	70	1		1	SC	ES			19 08 85	CRO	ES 1	0		
0 312	MW	156.	40	99		1	SC	ES			19 08 85	CRO	ES 1	0		
0 313	MW	150.	40				SC	ES			19 08 85	CRO	ES 1	0		
0 314	MW	148.	40				SC	ES			19 08 85	CRO	ES 1	0		
0 315	MW	141.	25				SC	ES			19 08 85	CRO	ES 1	0		
0 316	RT	153.	50			1	SD	ES			19 08 85	CRO	ES 1	1		
0 317	MW	363.	800.			7	SC	ES		0 1473	19 08 85	CRO	ES 1	0		
0 318	MW	338.	500.			5	SC	ES		0 1474	19 08 85	CRO	ES 1	0		
0 319	RT	238.					SC	ES		0 1475	19 08 85	CRO	ES 1	0		
0 320	RT	311.	440			2	SC	ES		0 1476	19 08 85	CRO	ES 1	0		
0 321	RT	306.	440			2	SC	ES		0 1477	19 08 85	CRO	ES 1	0		
0 322	MW	150						ES			19 08 85	CRO	ES 1	0		
0 323	MW	151.						ES			19 08 85	CRO	ES 1	0		
0 324	MW	214.						ES			19 08 85	CRO	ES 1	0		
0 325	MW	178.						ES			19 08 85	CRO	ES 1	0		
0 326	MW	151.						ES			19 08 85	CRO	ES 1	0		
0 327	MW	168.						ES			19 08 85	CRO	ES 1	0		
0 328	MW	207.						ES			19 08 85	CRO	ES 1	0		
0 329	MW	200.						ES			19 08 85	CRO	ES 1	0		
0 330	MW	148.						ES			19 08 85	CRO	ES 1	0		
0 331	MW	165.						ES			19 08 85	CRO	ES 1	0		
0 332	MW	168.						ES			19 08 85	CRO	ES 1	0		
0 333	MW	327.	450.	16		4	SC	ES			19 08 85	CRO	ES 1	1		
0 334	MW	163.						ES			19 08 85	CRO	ES 1	0		
0 335	MW	177.						ES			19 08 85	CRO	ES 1	0		
0 336	MW	159.						ES			19 08 85	CRO	ES 1	0		

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FISHERIES DATA - PRINT OUT BY SAMPLE NUMBER

SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY MO YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
D 337	MW	158.						ES			19 08 85	CRO	ES 1	0		
D 338	MW	149.						ES			19 08 85	CRO	ES 1	0		
D 339	MW	140.						ES			19 08 85	CRO	ES 1	0		
D 340	MW	108.						ES			19 08 85	CRO	ES 1	0		
D 341	MW	181.						ES			19 08 85	CRO	ES 1	0		
D 342	MW	208.						ES			19 08 85	CRO	ES 1	0		
D 343	MW	142.						ES			19 08 85	CRO	ES 1	0		
D 344	MW	151.						ES			19 08 85	CRO	ES 1	0		
D 345	MW	160.						ES			19 08 85	CRO	ES 1	0		
D 346	MW	153.						ES			19 08 85	CRO	ES 1	0		
D 347	MW	203.						ES			19 08 85	CRO	ES 1	0		
D 348	MW	182.						ES			19 08 85	CRO	ES 1	0		
D 349	MW	207.						ES			19 08 85	CRO	ES 1	0		
D 350	MW	155.						ES			19 08 85	CRO	ES 1	0		
D 351	MW	173.						ES			19 08 85	CRO	ES 1	0		
D 352	MW	187.						ES			19 08 85	CRO	ES 1	0		
D 353	MW	143.						ES			19 08 85	CRO	ES 1	0		
D 354	MW	152.						ES			19 08 85	CRO	ES 1	0		
D 355	MW	131.						ES			19 08 85	CRO	ES 1	0		
D 356	MW	152.						ES			19 08 85	CRO	ES 1	0		
D 357	MW	140.						ES			19 08 85	CRO	ES 1	0		
D 358	MW	165.						ES			19 08 85	CRO	ES 1	0		
D 359	MW	146.						ES			19 08 85	CRO	ES 1	0		
D 360	RT	177.				1	SO	ES			19 08 85	CRO	ES 1	1		
D 361	BNT	446.	1180	14		3	SC	ES			19 08 85	CRO	ES 1	0		
D 362	MW	385.	860			6	SC	ES		0 1478	19 08 85	CRO	ES 1	0		
D 363	MW	310.	600			8	SC	ES		0 1479	19 08 85	CRO	ES 1	0		
D 364	RT	368.	760			3	SC	ES		0 1480	19 08 85	CRO	ES 1	0		
D 365	MW	219.	180			2	SC	ES			19 08 85	CRO	ES 1	0		
D 366	RT	203.	110				SC	ES			19 08 85	CRO	ES 1	0		
D 367	RT	185.	60				SC	ES			19 08 85	CRO	ES 1	0		
D 368	RT	229.	80			1	SC	ES			19 08 85	CRO	ES 1	0		
D 369	RT	278.	220			2	SC	ES		0 1481	19 08 85	CRO	ES 1	0		
D 370	MW	249.	220	16			SC	ES			19 08 85	CRO	ES 1	1		
D 371	RT	410.	840				SC	ES		0 1482	19 08 85	CRO	ES 1	0		
D 372	RT	462.	1400			6	SC	ES		0 1483	19 08 85	CRO	ES 1	0		ST - 2LND
D 373	RT	364.	540			3	SC	ES		0 1484	19 08 85	CRO	ES 1	0		
D 374	RT	268.	260				SC	ES		0 1485	19 08 85	CRO	ES 1	0		
D 375	RT	150.	50			1	SC	ES			19 08 85	CRO	ES 1	0		
D 376	RT	200.	100				SC	ES			19 08 85	CRO	ES 1	0		
D 377	RT	183.	80				SC	ES			19 08 85	CRO	ES 1	0		
D 378	RT	163.	35			1	SC	ES			19 08 85	CRO	ES 1	0		
D 379	RT	206.	100				SC	ES			19 08 85	CRO	ES 1	0		
D 380	MW	205.						ES			19 08 85	CRO	ES 1	0		
D 381	MW	186.						ES			19 08 85	CRO	ES 1	0		
D 382	MW	165.						ES			19 08 85	CRO	ES 1	0		
D 383	MW	151.						ES			19 08 85	CRO	ES 1	0		
D 384	MW	151.						ES			19 08 85	CRO	ES 1	0		
D 385	MW	257.	160					ES		0 1486	19 08 85	CRO	ES 1	0		
D 386	MW	280.	260					ES		0 1487	19 08 85	CRO	ES 1	0		
D 387	MW	278.	260			3	SC	ES		0 1488	19 08 85	CRO	ES 1	0		
D 388	MW	322.	300			5	SC	ES		0 1489	19 08 85	CRO	ES 1	0		
D 389	MW	354.	500			6	SC	ES		0 1490	19 08 85	CRO	ES 1	0		
D 390	RT	312.	490			2	SC	ES		0 1491	19 08 85	CRO	ES 1	0		
D 391	MW	311.	480			4	SC	ES		0 1492	19 08 85	CRO	ES 1	0		
D 392	RT	260.	230				SC	ES		0 1493	19 08 85	CRO	ES 1	0		
D 393	MW	250.	200			3	SC	ES		0 1494	19 08 85	CRO	ES 1	0		
D 394	MW	270.	260			3	SC	ES		0 1495	19 08 85	CRO	ES 1	0		
D 395	MW	273.	260			3	SC	ES		0 1496	19 08 85	CRO	ES 1	0		
D 396	MW	239.	180			3	SC	ES		0 1497	19 08 85	CRO	ES 1	0		
D 397	MW	338.	520	6		5	SC	ES			19 08 85	CRO	ES 1	1		
D 398	MW	275.	330	16		3	SC	ES			19 08 85	CRO	ES 1	1		
D 399	MW	736.	260	16			SC	ES			19 08 85	CRO	ES 1	1		
D 400	MW	222.	140	1		2	SC	ES			19 08 85	CRO	ES 1	1		
D 401	RT	262.	310	11		2	SC	ES			19 08 85	CRO	ES 1	1		
D 402	MW	209.	130			2	SC	ES			19 08 85	CRO	ES 1	0		
D 403	MW	136.	30			1	SC	ES			19 08 85	CRO	ES 1	0		
D 404	MW	161.	35					ES			19 08 85	CRO	ES 1	0		
D 405	MW	225.					SC	ES			19 08 85	CRO	ES 1	0		
D 406	MW	165.	60				SC	ES			19 08 85	CRO	ES 1	0		
D 407	MW	149.	60			1	SC	ES			19 08 85	CRO	ES 1	0		
D 408	MW	146.				1	SC	ES			19 08 85	CRO	ES 1	0		
D 409	MW	149.						ES			19 08 85	CRO	ES 1	0		
D 410	MW	163.	30					ES			19 08 85	CRO	ES 1	0		
D 411	MW	151.				1	SC	ES			19 08 85	CRO	ES 1	0		
D 412	MW	138.	30					ES			19 08 85	CRO	ES 1	0		
D 413	MW	142.				1	SC	ES			19 08 85	CRO	ES 1	0		
D 414	MW	151.						ES			19 08 85	CRO	ES 1	0		
D 415	MW	146.						ES			19 08 85	CRO	ES 1	0		
D 416	MW	150.						ES			19 08 85	CRO	ES 1	0		
D 417	MW	150.						ES			19 08 85	CRO	ES 1	0		
D 418	RT	230.	195	11			SO	ES			19 08 85	CRO	ES 1	1		
D 419	RT	290.	395	11		2	SO	ES			19 08 85	CRO	ES 1	1		
D 420	RT	210.	140	1			SO	ES			19 08 85	CRO	ES 1	1		
D 421	MW	250.						ES			20 08 85	CRO	ES 3	0		
D 422	MW	222.						ES			20 08 85	CRO	ES 3	0		
D 423	MW	264.						ES			20 08 85	CRO	ES 3	0		
D 424	MW	236.						ES			20 08 85	CRO	ES 3	0		
D 425	MW	226.						ES			20 08 85	CRO	ES 3	0		
D 426	MW	204.						ES			20 08 85	CRO	ES 3	0		
D 427	MW	220.						ES			20 08 85	CRO	ES 3	0		
D 428	MW	235.						ES			20 08 85	CRO	ES 3	0		
D 429	MW	268.						ES			20 08 85	CRO	ES 3	0		
D 430	MW	232.						ES			20 08 85	CRO	ES 3	0		
D 431	MW	207.						ES			20 08 85	CRO	ES 3	0		
D 432	MW	232.						ES			20 08 85	CRO	ES 3	0		
D 433	MW	277.						ES			20 08 85	CRO	ES 3	0		
D 434	MW	264.						ES			20 08 85	CRO	ES 3	0		
D 435	MW	235.						ES			20 08 85	CRO	ES 3	0		
D 436	MW	231.						ES			20 08 85	CRO	ES 3	0		
D 437	MW	210.						ES			20 08 85	CRO	ES 3	0		
D 438	MW	221.						ES			20 08 85	CRO	ES 3	0		
D 439	MW	265.						ES			20 08 85	CRO	ES 3	0		
D 440	MW	300.						ES			20 08 85	CRO	ES 3	0		
D 441	MW	321.						ES			20 08 85	CRO	ES 3	0		
D 442	RT	381.	270			2	SC	ES			20 08 85	CRO	ES 3	0		
D 443	RT	357.	226				SC	ES			20 08 85	CRO	ES 3	0		
D 444	RT	186.	115			1	SC	ES			20 08 85	CRO	ES 3	0		
D 445	RT	212.	105				SC	ES			20 08 85	CRO	ES 3	0		
D 446	RT	386.	360				SC	ES			20 08 85	CRO	ES 3	0		
D 447	RT	302.	180				SC	ES			20 08 85	CRO	ES 3	0		
D 448	MW	226.	160					ES			20 08 85	CRO	ES 3	0		

RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY SAMPLE NUMBER

SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY MO YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
0 449	MW	214.	130.					ES			20 08 85	CRD	ES 3	0		
0 450	MW	227.	160.					ES			20 08 85	CRD	ES 3	0		
0 451	MW	207.	115.					ES			20 08 85	CRD	ES 3	0		
0 452	MW	276.	250.					ES			20 08 85	CRD	ES 3	0		
0 453	MW	335.	480.			5	SC	ES			20 08 85	CRD	ES 3	0		
0 454	MW	248.	210.					ES			20 08 85	CRD	ES 3	0		
0 455	MW	282.	300.					ES			20 08 85	CRD	ES 3	0		
0 456	MW	313.	390.			4	SC	ES			20 08 85	CRD	ES 3	0		
0 457	MW	247.	230.					ES			20 08 85	CRD	ES 3	0		
0 458	MW	276.	240.					ES			20 08 85	CRD	ES 3	0		
0 459	MW	168.	80.					ES			20 08 85	CRD	ES 3	0		
0 460	MW	271.	225.					ES			20 08 85	CRD	ES 3	0		
0 461	MW	198.	100.					ES			20 08 85	CRD	ES 3	0		
0 462	MW	220.	130.					ES			20 08 85	CRD	ES 3	0		
0 463	RT	304	400			3	SC	ES			20 08 85	CRD	ES 3	0		
0 464	MW	248.	180.	8		3	SC	ES			20 08 85	CRD	ES 3	1		
0 465	MW	264.	240.	18		3	SC	ES			20 08 85	CRD	ES 3	1		
0 466	MW	314	440			5	SC	ES			20 08 85	CRD	ES 3	0		
0 467	MW	224.	150					ES			20 08 85	CRD	ES 3	0		
0 468	RT	218.	155			2	SC	ES			20 08 85	CRD	ES 3	0		
0 469	RT	177	90			1	SC	ES			20 08 85	CRD	ES 3	0		
0 470	RT	238	190			2	SC	ES			20 08 85	CRD	ES 3	0		
0 471	RT	165	60			1	SC	ES			20 08 85	CRD	ES 3	0		
0 472	RT	265	290	1			SO	ES			20 08 85	CRD	ES 3	1		
0 473	MW	235	160	4		2	SC	ES			20 08 85	CRD	ES 3	1		
0 474	MW	181	90	1		2	SC	ES			20 08 85	CRD	ES 3	1		
0 475	MW	217	130	11		2	SC	ES			20 08 85	CRD	ES 3	1		
0 476	MW	269	280	8		3	SC	ES			20 08 85	CRD	ES 3	1		
0 477	MW	235	180	8		2	SC	ES			20 08 85	CRD	ES 3	1		
0 478	MW	218	145	6		2	SC	ES			20 08 85	CRD	ES 3	1		
0 479	MW	347	720			8	SC	ES			20 08 85	CRD	ES 3	0		
0 480	MW	333	540			5	SC	ES			20 08 85	CRD	ES 3	0		
0 481	RT	410	1010			3	SC	ES		0 1498	20 08 85	CRD	ES 3	0		
0 482	RT	407.	950				SC	ES		0 1499	20 08 85	CRD	ES 3	0		
0 483	RT	413	1040			4	SC	ES		0 1500	20 08 85	CRD	ES 3	0		
0 484	RT	312	480			2	SC	ES			20 08 85	CRD	ES 3	0		
0 485	RT	203	130				SC	ES			20 08 85	CRD	ES 3	0		
0 486	MW	424	910			9	SC	ES		0 1501	20 08 85	CRD	ES 3	0		
0 487	RT	334	540			3	SC	ES		0 1502	20 08 85	CRD	ES 3	0		
0 488	RT	206	135					ES			20 08 85	CRD	ES 3	0		
0 489	RT	347	550			3	SC	ES		0 1503	20 08 85	CRD	ES 3	0		
0 490	RT	294	350			2	SC	ES		0 1504	20 08 85	CRD	ES 3	0		
0 491	RT	279	300			3	SC	ES		0 1505	20 08 85	CRD	ES 3	0		
0 492	RT	266	230			2	SC	ES		0 1506	20 08 85	CRD	ES 3	0		
0 493	RT	253.	205			2	SC	ES		0 1507	20 08 85	CRD	ES 3	0		
0 494	RT	284.	210				SC	ES		0 1508	20 08 85	CRD	ES 3	0		
0 495	RT	230	160			3	SC	ES		0 1509	20 08 85	CRD	ES 3	0		
0 496	RT	174	65			1	SC	ES			20 08 85	CRD	ES 3	0		
0 497	RT	180	70			1	SC	ES			20 08 85	CRD	ES 3	0		
0 498	RT	209	145				SC	ES			20 08 85	CRD	ES 3	0		
0 499	MW	346				3	SC	ES		0 1510	20 08 85	CRD	ES 3	0		
0 500	MW	278	300				SC	ES		0 1511	20 08 85	CRD	ES 3	0		
0 501	MW	272	290				SC	ES		0 1512	20 08 85	CRD	ES 3	0		
0 502	MW	247	190				SC	ES		0 1513	20 08 85	CRD	ES 3	0		
0 503	MW	215	165					ES		0 5114	20 08 85	CRD	ES 3	2		
0 504	MW	244	200				SC	ES		0 1514	20 08 85	CRD	ES 3	0		
0 505	MW	218	170	6				ES			20 08 85	CRD	ES 3	1		
0 506	MW	324	450			5	SC	ES		0 1515	20 08 85	CRD	ES 3	0		
0 507	MW	329	410			6	SC	ES		0 1516	20 08 85	CRD	ES 3	0		
0 508	MW	305	360					ES		0 1517	20 08 85	CRD	ES 3	0		
0 509	MW	284	315			3	SC	ES		0 1518	20 08 85	CRD	ES 3	0		
0 510	RT	287	220			2	SC	ES		0 1519	20 08 85	CRD	ES 3	0		
0 511	RT	277.	600			2	SC	ES		0 1520	20 08 85	CRD	ES 3	0		
0 512	MW	318	350			5	SC	ES		0 1521	20 08 85	CRD	ES 3	0		
0 513	BNT	237.	205			1	SC	ES		0 1522	20 08 85	CRD	ES 3	0		
0 514	BNT	219	140			1	SC	ES			20 08 85	CRD	ES 3	0		
0 515	BNT	203.	110			1	SC	ES			20 08 85	CRD	ES 3	0		
0 516	RT	145	35			1	SC	ES			20 08 85	CRD	ES 3	0		
0 517	RT	188	85			1	SC	ES			20 08 85	CRD	ES 3	0		
0 518	MW	312	350					ES		0 1523	20 08 85	CRD	ES 3	0		
0 519	MW	231	180					ES		0 1524	20 08 85	CRD	ES 3	0		
0 520	MW	256	220					ES		0 1525	20 08 85	CRD	ES 3	0		
0 521	MW	314	380					ES		0 1526	20 08 85	CRD	ES 3	0		
0 522	MW	285	315					ES		0 1527	20 08 85	CRD	ES 3	0		
0 523	MW	316	420					ES		0 1528	20 08 85	CRD	ES 3	0		
0 524	MW	300	320					ES		0 1529	20 08 85	CRD	ES 3	0		
0 525	MW	235	185					ES			20 08 85	CRD	ES 3	0		
0 526	MW	318	350					ES		0 1530	20 08 85	CRD	ES 3	0		
0 527	MW	263	240					ES		0 1531	20 08 85	CRD	ES 3	0		
0 528	MW	295	260					ES		0 1532	20 08 85	CRD	ES 3	0		
0 529	MW	259	220					ES		0 1533	20 08 85	CRD	ES 3	0		
0 530	MW	280						ES		0 1534	21 08 85	OLD	ES 2	0		
0 531	RT	284				3	SC	ES		0 1535	21 08 85	OLD	ES 2	0		
0 532	MW	267						ES		0 1536	21 08 85	OLD	ES 2	0		
0 533	MW	237						ES		0 1537	21 08 85	OLD	ES 2	0		
0 534	MW	268						ES		0 1538	21 08 85	OLD	ES 2	0		
0 535	MW	275						ES		0 1539	21 08 85	OLD	ES 2	0		
0 536	MW	260						ES		0 1540	21 08 85	OLD	ES 2	0		
0 537	MW	194						ES			21 08 85	OLD	ES 2	0		
0 538	MW	180						ES			21 08 85	OLD	ES 2	0		
0 539	MW	231						ES			21 08 85	OLD	ES 2	0		
0 540	RT	221				2	SC	ES			21 08 85	OLD	ES 2	0		
0 541	RT	198				3	SC	ES			21 08 85	OLD	ES 2	0		
0 542	MW	175						ES			21 08 85	OLD	ES 2	0		
0 543	MW	83				0	LF	ES			21 08 85	OLD	ES 2	0		
0 544	RT	132				1	SC	ES			21 08 85	OLD	ES 2	0		
0 545	RT	154				1	SC	ES			21 08 85	OLD	ES 2	0		
0 546	MW	284						ES		0 1541	21 08 85	OLD	ES 2	0		
0 547	MW	290						ES		0 1542	21 08 85	OLD	ES 2	0		
0 548	MW	285						ES		0 1543	21 08 85	OLD	ES 2	0		
0 549	MW	299						ES		0 1544	21 08 85	OLD	ES 2	0		
0 550	MW	282.						ES		0 1545	21 08 85	OLD	ES 2	0		
0 551	MW	261.						ES		0 1546	21 08 85	OLD	ES 2	0		
0 552	MW	234						ES		0 1547	21 08 85	OLD	ES 2	0		
0 553	MW	138.						ES			21 08 85	OLD	ES 2	0		
0 554	MW	125.						ES			21 08 85	OLD	ES 2	0		
0 555	MW	161.						ES			21 08 85	OLD	ES 2	0		
0 556	RT	202.				2	SC	ES			21 08 85	OLD	ES 2	0		
0 557	MW	192.						ES			21 08 85	OLD	ES 2	0		
0 558	MW	133.						ES			21 08 85	OLD	ES 2	0		
0 559	MW	121.						ES			21 08 85	OLD	ES 2	0		
0 560	MW	134.						ES			21 08 85	OLD	ES 2	0		

RLGL ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY SAMPLE NUMBER

SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY	MO	YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
0 561	MW	161.	.		.			ES			21	08	85	OLD	ES 2	0		
0 562	MW	188.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 563	RT	244.	.		.	3	SC	ES		0 1548	21	08	85	OLD	ES 2	0		
0 564	RT	207.	.		.	2	SC	ES	.		21	08	85	OLD	ES 2	0		
0 565	RT	168.	.		.	1	SC	ES			21	08	85	OLD	ES 2	0		
0 566	RT	132.	.		.	1	SC	ES	.		21	08	85	OLD	ES 2	0		
0 567	RT	84.	.		.	1	SC	ES			21	08	85	OLD	ES 2	0		
0 568	MW	337.	.		.			ES	.	0 1549	21	08	85	OLD	ES 2	0		
0 569	MW	311.	.		.			ES	.	0 1550	21	08	85	OLD	ES 2	0		
0 570	MW	343.	.		.			ES	.	0 1551	21	08	85	OLD	ES 2	0		
0 571	MW	289.	.		.			ES	.	0 1552	21	08	85	OLD	ES 2	0		
0 572	MW	273.	.		.			ES		0 1553	21	08	85	OLD	ES 2	0		
0 573	MW	288.	.		.			ES	.	0 1554	21	08	85	OLD	ES 2	0		
0 574	MW	264.	.		.			ES		0 1555	21	08	85	OLD	ES 2	0		
0 575	MW	276.	.		.			ES	.	0 1556	21	08	85	OLD	ES 2	0		
0 576	MW	232						ES	.		21	08	85	OLD	ES 2	0		
0 577	MW	230						ES			21	08	85	OLD	ES 2	0		
0 578	MW	251.						ES			21	08	85	OLD	ES 2	0		
0 579	MW	225			.			ES			21	08	85	OLD	ES 2	0		
0 580	MW	226	.					ES			21	08	85	OLD	ES 2	0		
0 581	MW	182						ES			21	08	85	OLD	ES 2	0		
0 582	MW	251.		18				ES			21	08	85	OLD	ES 2	1		
0 583	MW	80.		99		0	LF	ES			21	08	85	OLD	ES 2	0		
0 584	RT	261	240		.	2	SC	ES		0 1560	21	08	85	OLD	ES 2	0		
0 585	RT	231	175			2	SC	ES			21	08	85	OLD	ES 2	0		
0 586	RT	242	185			3	SO	ES	.	0 1562	21	08	85	OLD	ES 2	1		
0 587	RT	249	210			2	SC	ES		0 1563	21	08	85	OLD	ES 2	0		
0 588	RT	307	400			3	SC	ES		0 1564	21	08	85	OLD	ES 2	0		
0 589	RT	225	150			2	SC	ES		0 1565	21	08	85	OLD	ES 2	0		
0 590	RT	244	185				SC	ES		0 1566	21	08	85	OLD	ES 2	0		
0 591	RT	247	210				SC	ES		0 1567	21	08	85	OLD	ES 2	0		
0 592	RT	214	110			2	SC	ES			21	08	85	OLD	ES 2	0		
0 593	RT	221	125				SC	ES			21	08	85	OLD	ES 2	0		
0 594	RT	240	140			2	SC	ES		0 1568	21	08	85	OLD	ES 2	0		
0 595	RT	163	50			2	SC	ES			21	08	85	OLD	ES 2	0		
0 596	RT	110	20			1	SC	ES			21	08	85	OLD	ES 2	0		
0 597	RT	182	60			2	SC	ES			21	08	85	OLD	ES 2	0		
0 598	RT	202	95				SC	ES			21	08	85	OLD	ES 2	0		
0 599	RT	169	60			2	SC	ES			21	08	85	OLD	ES 2	0		
0 600	RT	130	25			1	SC	ES			21	08	85	OLD	ES 2	0		
0 601	RT	107	15			1	SC	ES			21	08	85	OLD	ES 2	0		
0 602	RT	104	10			1	SC	ES			21	08	85	OLD	ES 2	0		
0 603	RT	101	10			1	SC	ES			21	08	85	OLD	ES 2	0		
0 604	RT	219	140	11		2	SO	ES			21	08	85	OLD	ES 2	1		
0 605	MW	287	250					ES		0 1569	21	08	85	OLD	ES 2	0		
0 606	MW	304	305		.			ES		0 1570	21	08	85	OLD	ES 2	0		
0 607	MW	380	500					ES		0 1571	21	08	85	OLD	ES 2	0		
0 608	MW	302	315					ES		0 1572	21	08	85	OLD	ES 2	0		
0 609	MW	321	380					ES		0 1573	21	08	85	OLD	ES 2	0		
0 610	MW	295	380					ES		0 1574	21	08	85	OLD	ES 2	0		
0 611	MW	259	215					ES		0 1575	21	08	85	OLD	ES 2	0		
0 612	MW	313	380					ES		0 1576	21	08	85	OLD	ES 2	0		
0 613	MW	271	220					ES		0 1577	21	08	85	OLD	ES 2	0		
0 614	MW	267	250					ES			21	08	85	OLD	ES 2	0		
0 615	MW	235	185					ES			21	08	85	OLD	ES 2	0		
0 616	MW	256	235					ES			21	08	85	OLD	ES 2	0		
0 617	MW	259	220					ES			21	08	85	OLD	ES 2	0		
0 618	MW	253	225					ES			21	08	85	OLD	ES 2	0		
0 619	MW	208	115					ES			21	08	85	OLD	ES 2	0		
0 620	MW	230	160					ES			21	08	85	OLD	ES 2	0		
0 621	MW	165	40					ES			21	08	85	OLD	ES 2	0		
0 622	MW	157	40					ES			21	08	85	OLD	ES 2	0		
0 623	MW	148	40					ES			21	08	85	OLD	ES 2	0		
0 624	MW	184	85					ES			21	08	85	OLD	ES 2	0		
0 625	MW	242	210	8				ES			21	08	85	OLD	ES 2	1		
0 626	MW	286	230	18				ES			21	08	85	OLD	ES 2	1		
0 627	MW	260	220	8				ES			21	08	85	OLD	ES 2	1		
0 628	MW	227	150	8				ES			21	08	85	OLD	ES 2	1		
0 629	MW	214	130	6				ES			21	08	85	OLD	ES 2	1		
0 630	MW	194	110					ES			21	08	85	OLD	ES 2	0		
0 631	MW	180	70					ES			21	08	85	OLD	ES 2	0		
0 632	MW	230	130					ES			21	08	85	OLD	ES 2	0		
0 633	MW	147	40					ES			21	08	85	OLD	ES 2	0		
0 634	MW	136	30					ES			21	08	85	OLD	ES 2	0		
0 635	MW	160	25					ES			21	08	85	OLD	ES 2	0		
0 636	RT	256					SC	ES		0 1561	21	08	85	OLD	ES 2	0		
0 637	RT	226					SC	ES		0 1578	21	08	85	OLD	ES 2	0		
0 638	RT	230	140				SC	ES		0 1579	21	08	85	OLD	ES 2	0		
0 639	RT	198	60				SC	ES			21	08	85	OLD	ES 2	0		
0 640	RT	211	110			2	SC	ES			21	08	85	OLD	ES 2	0		
0 641	RT	163	60			2	SC	ES			21	08	85	OLD	ES 2	0		
0 642	RT	208	90				SC	ES			21	08	85	OLD	ES 2	0		
0 643	RT	198	95			2	SC	ES			21	08	85	OLD	ES 2	0		
0 644	RT	187	70				SC	ES			21	08	85	OLD	ES 2	0		
0 645	RT	119				1	SC	ES			21	08	85	OLD	ES 2	0		
0 646	RT	98				1	SC	ES			21	08	85	OLD	ES 2	0		
0 647	RT	162				1	SC	ES			21	08	85	OLD	ES 2	0		
0 648	RT	129				1	SC	ES			21	08	85	OLD	ES 2	0		
0 649	RT	125						ES			21	08	85	OLD	ES 2	0		
0 650	RT	100						ES			21	08	85	OLD	ES 2	0		
0 651	RT	168	40					ES			21	08	85	OLD	ES 2	0		
0 652	RT	185	65					ES			21	08	85	OLD	ES 2	0		
0 653	MW	320	260					ES		0 1580	21	08	85	OLD	ES 2	0		
0 654	MW	283	240					ES		0 1581	21	08	85	OLD	ES 2	0		
0 655	MW	270	270					ES		0 1582	21	08	85	OLD	ES 2	0		
0 656	MW	269	260					ES		0 1583	21	08	85	OLD	ES 2	0		
0 657	MW	279	250					ES		0 1584	21	08	85	OLD	ES 1	0		
0 658	MW	264	225					ES		0 1585	21	08	85	OLD	ES 2	0		
0 659	MW	161						ES			21	08	85	OLD	ES 2	0		
0 660	MW	167						ES			21	08	85	OLD	ES 2	1		
0 661	MW	130						ES			21	08	85	OLD	ES 2	0		
0 662	MW	161						ES			21	08	85	OLD	ES 2	0		
0 663	MW	246.	185.	18	.			ES	.		21	08	85	OLD	ES 2	1		
0 664	RT	223.	135.		.			ES	.		21	08	85	OLD	ES 2	0		
0 665	RT	182.	85.		.			ES	.		21	08	85	OLD	ES 2	0		
0 666	RT	273.	240.		.			ES	.	0 1586	21	08	85	OLD	ES 2	0		
0 667	RT	216.	120.		.			ES	.		21	08	85	OLD	ES 2	0		
0 668	RT	210.	120.		.			ES	.		21	08	85	OLD	ES 2	0		
0 669	RT	211.	130.		.			ES	.		21	08	85	OLD	ES 2	0		
0 670	RT	226.	145.		.			ES	.	0 1587	21	08	85	OLD	ES 2	0		
0 671	RT	240.	200.		.			ES	.	0 1588	21	08	85	OLD	ES 2	0		
0 672	RT	230.	140.		.			ES	.	0 1589	21	08	85	OLD	ES 2	0		

RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY SAMPLE NUMBER

SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO	DATE DAY MO YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
0 673	RT	165.	70.					ES			21 08 85	OLD	ES 2	0		
0 674	RT	215.	110.					ES			21 08 85	OLD	ES 2	0		
0 675	RT	206.	130.					ES			21 08 85	OLD	ES 2	0		
0 676	RT	229.	160.					ES		0 1590	21 08 85	OLD	ES 2	0		
0 677	RT	161.	30.					ES			21 08 85	OLD	ES 2	0		
0 678	RT	188.	60.					ES			21 08 85	OLD	ES 2	0		
0 679	RT	130.	25.					ES			21 08 85	OLD	ES 2	0		
0 680	RT	216.	105.					ES			21 08 85	OLD	ES 2	0		
0 681	RT	135.	30.					ES			21 08 85	OLD	ES 2	0		
0 682	HW	311.	320.					ES		0 1591	21 08 85	OLD	ES 2	0		
0 683	RT	110.						ES			21 08 85	OLD	ES 2	0		
0 684	HW	411.	700.					ES		0 1592	21 08 85	OLD	ES 2	0		
0 685	HW	362.	550.					ES		0 1593	21 08 85	OLD	ES 2	0		
0 686	HW	316.	420.					ES		0 1594	21 08 85	OLD	ES 2	0		
0 687	HW	277.	270.					ES		0 1595	21 08 85	OLD	ES 2	0		
0 688	HW	355.	210.					ES		0 1596	21 08 85	OLD	ES 2	0		
0 689	HW	262.	210.					ES		0 1597	21 08 85	OLD	ES 2	0		
0 690	HW	197.	70.					ES			21 08 85	OLD	ES 2	0		
0 691	HW	150.	30.					ES			21 08 85	OLD	ES 2	0		
0 692	HW	213.	110.					ES			21 08 85	OLD	ES 2	0		
0 693	HW	260.	210.					ES			21 08 85	OLD	ES 2	0		
0 694	HW	138.						ES			21 08 85	OLD	ES 2	0		
0 695	HW	126.						ES			21 08 85	OLD	ES 2	0		
0 696	HW	138.						ES			21 08 85	OLD	ES 2	0		
0 697	HW	167.						ES			21 08 85	OLD	ES 2	0		
0 698	RT	428.	950.			4	SE	ES		0 1598	22 08 85	CRO	ES 2	0		
0 699	RT	298.	345.			2	SE	ES		0 1599	22 08 85	CRO	ES 2	0		
0 700	HW	298.	360.					ES		0 1600	22 08 85	CRO	ES 2	0		
0 701	RT	303.	390.			2	SE	ES		0 1601	22 08 85	CRO	ES 2	0		
0 702	RT	355.	630.			3	SE	ES		0 1602	22 08 85	CRO	ES 2	0		
0 703	RT	395.	600.			3	SE	ES		0 1603	22 08 85	CRO	ES 2	0		
0 704	RT	387.	610.			3	SE	ES		0 1604	22 08 85	CRO	ES 2	0		
0 705	RT	382.	770.			3	SE	ES		0 1605	22 08 85	CRO	ES 2	0		
0 706	RT	402.	795.			3	SE	ES		0 1606	22 08 85	CRO	ES 2	0		
0 707	RT	298.	410.			2	SE	ES		0 1607	22 08 85	CRO	ES 2	0		
0 708	HW	270.	300.					ES		0 1608	22 08 85	CRO	ES 2	0		
0 709	BNT	223.	145.			1	SE	ES		0 1609	22 08 85	CRO	ES 2	0		
0 710	BNT	218.	140.			1	SE	ES			22 08 85	CRO	ES 2	0		
0 711	RT	180.	85.			1	SE	ES			22 08 85	CRO	ES 2	0		
0 712	RT	208.	130.			1	SE	ES			22 08 85	CRO	ES 2	0		
0 713	HW	320.	430.					ES		0 1610	22 08 85	CRO	ES 2	0		
0 714	HW	250.	240.					ES		0 1611	22 08 85	CRO	ES 2	0		
0 715	HW	219.	140.					ES			22 08 85	CRO	ES 2	0		
0 716	HW	226.	160.					ES			22 08 85	CRO	ES 2	0		
0 717	HW	234.	170.					ES			22 08 85	CRO	ES 2	0		
0 718	HW	219.	160.					ES			22 08 85	CRO	ES 2	0		
0 719	HW	288.	240.					ES		0 1612	22 08 85	CRO	ES 2	0		
0 720	HW	389.	400.					ES		0 1613	22 08 85	CRO	ES 2	0		
0 721	HW	234.	145.					ES		0 1614	22 08 85	CRO	ES 2	0		
0 722	HW	175.	60.					ES			22 08 85	CRO	ES 2	0		
0 723	HW	203.	80.					ES			22 08 85	CRO	ES 2	0		
0 724	RT	282.	240.			2	SE	ES		0 1615	22 08 85	CRO	ES 2	0		
0 725	RT	462.				4	SE	ES		0 1616	22 08 85	CRO	ES 2	0		
0 726	RT	462.	1400.			4	SE	ES		0 1617	22 08 85	CRO	ES 2	0		
0 727	RT	322.	420.			2	SE	ES		0 1618	22 08 85	CRO	ES 2	0		
0 728	RT	304.	400.			3	SE	ES		0 1619	22 08 85	CRO	ES 2	0		
0 729	RT	186.	100.			1	SE	ES			22 08 85	CRO	ES 2	0		
0 730	RT	220.	175.			1	SE	ES		0 1620	22 08 85	CRO	ES 2	0		
0 731	RT		240.			1	SE	ES		0 1621	22 08 85	CRO	ES 2	0		
0 732	RT	170.	70.			1	SE	ES			22 08 85	CRO	ES 2	0		
0 733	BNT	224.	160.			1	SE	ES		0 1622	22 08 85	CRO	ES 2	0		
0 734	HW	83.				0	LP	ES			22 08 85	CRO	ES 2	0		
0 735	HW	80.				0	LP	ES			22 08 85	CRO	ES 2	0		
0 736	HW	85.				0	LP	ES			22 08 85	CRO	ES 2	0		
0 737	HW	92.				0	LP	ES			22 08 85	CRO	ES 2	0		
0 738	RT	315.	450.			2	SE	ES		0 1623	22 08 85	CRO	ES 2	0		
0 739	RT	387.	500.			3	SE	ES		0 1624	22 08 85	CRO	ES 2	0		
0 740	RT	406.	580.			3	SE	ES		0 1625	22 08 85	CRO	ES 2	0		
0 741	RT	325.	380.			2	SE	ES		0 1626	22 08 85	CRO	ES 2	0		
0 742	BNT	372.	850.			3	SE	ES		0 1627	22 08 85	CRO	ES 2	0		
0 743	HW	234.						ES		0 1628	22 08 85	CRO	ES 2	0		
0 744	HW	227.						ES		0 1629	22 08 85	CRO	ES 2	0		
0 745	HW	348.						ES		0 1630	22 08 85	CRO	ES 2	0		
0 746	HW	337.						ES		0 1631	22 08 85	CRO	ES 2	0		
0 747	HW	339.						ES		0 1632	22 08 85	CRO	ES 2	0		
0 748	HW	320.						ES		0 1633	22 08 85	CRO	ES 2	0		
0 749	HW	265.						ES		0 1634	22 08 85	CRO	ES 2	0		
0 750	HW	260.						ES		0 1635	22 08 85	CRO	ES 2	0		
0 751	HW	267.						ES		0 1636	22 08 85	CRO	ES 2	0		
0 752	HW	274.						ES		0 1637	22 08 85	CRO	ES 2	0		
0 753	HW	253.						ES		0 1638	22 08 85	CRO	ES 2	0		
0 754	HW	261.						ES		0 1639	22 08 85	CRO	ES 2	0		
0 755	HW	262.						ES		0 1640	22 08 85	CRO	ES 2	0		
0 756	HW	239.						ES		0 1641	22 08 85	CRO	ES 2	0		
0 757	HW	240.						ES		0 1642	22 08 85	CRO	ES 2	0		
0 758	HW	234.						ES		0 1643	22 08 85	CRO	ES 2	0		
0 759	HW	219.						ES			22 08 85	CRO	ES 2	0		
0 760	HW	220.						ES			22 08 85	CRO	ES 2	0		
0 761	HW	207.						ES			22 08 85	CRO	ES 2	0		
0 762	HW	173.						ES			22 08 85	CRO	ES 2	0		
0 763	HW	218.						ES			22 08 85	CRO	ES 2	0		
0 764	HW	184.						ES			22 08 85	CRO	ES 2	0		
0 765	HW	225.						ES			22 08 85	CRO	ES 2	0		
0 766	HW	183.						ES			22 08 85	CRO	ES 2	0		
0 767	HW	173.						ES			22 08 85	CRO	ES 2	0		
0 768	HW	146.						ES			22 08 85	CRO	ES 2	0		
0 769	RT	342.	550.			2	SE	ES		0 1644	22 08 85	CRO	ES 2	0		
0 770	RT	340.	600.			2	SE	ES		0 1645	22 08 85	CRO	ES 2	0		
0 771	RT	473.	1380.			4	SE	ES		0 1646	22 08 85	CRO	ES 2	0		
0 772	RT	282.	280.			2	SE	ES		0 1647	22 08 85	CRO	ES 2	0		
0 773	RT	336.	560.			3	SE	ES		0 1648	22 08 85	CRO	ES 2	0		
0 774	RT	232.	180.			3	SE	ES		0 1649	22 08 85	CRO	ES 2	0		
0 775	BNT	235.				1	SE	ES		0 1650	22 08 85	CRO	ES 2	0		
0 776	BNT	380.				1	SE	ES		0 1651	22 08 85	CRO	ES 2	0		
0 777	RT	280.						ES		0 1652	22 08 85	CRO	ES 2	0		
0 778	RT	286.						ES			22 08 85	CRO	ES 2	0		
0 779	RT	232.						ES		0 1653	22 08 85	CRO	ES 2	0		
0 780	RT	304.						ES			22 08 85	CRO	ES 2	0		
0 781	RT	231.						ES			22 08 85	CRO	ES 2	0		
0 782	HW	280.						ES		0 1654	22 08 85	CRO	ES 2	0		
0 783	HW	328.						ES		0 1655	22 08 85	CRO	ES 2	0		
0 784	HW	283.						ES		0 1656	22 08 85	CRO	ES 2	0		

RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY SAMPLE NUMBER

SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY	MO	YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
0 785	MW	337.						ES		0 1657	22	08	85	CRO	ES 2	0		
0 786	MW	290.						ES		0 1658	22	08	85	CRO	ES 2	0		
0 787	MW	231.						ES		0 1659	22	08	85	CRO	ES 2	0		
0 788	MW	181.						ES			22	08	85	CRO	ES 2	0		
0 789	BNT	438.	1255.			3	SC	ES		0 1660	22	08	85	CRO	ES 2	0		
0 790	BNT	480.	1560.					ES		0 1661	22	08	85	CRO	ES 2	0		SCALES EMBEDDED
0 791	BNT	455.	1270.			3	SC	ES		0 1662	22	08	85	CRO	ES 2	0		
0 792	RT	287.	325.					ES		0 1663	22	08	85	CRO	ES 2	0		
0 793	RT	317.	380.					ES		0 1664	22	08	85	CRO	ES 2	0		
0 794	RT	223.	180.					ES		0 1665	22	08	85	CRO	ES 2	0		
0 795	RT	301.	395.					ES		0 1666	22	08	85	CRO	ES 2	0		
0 796	RT	245.	200.					ES		0 1667	22	08	85	CRO	ES 2	0		
0 797	RT	396.	880.					ES		0 1668	22	08	85	CRO	ES 2	0		
0 798	RT	321.	470.	11		2	SB	ES			22	08	85	CRO	ES 2	1		
0 799	MW	364.						ES		0 1669	22	08	85	CRO	ES 2	0		
0 800	MW	394.	770.					ES		0 1670	22	08	85	CRO	ES 2	0		
0 801	MW	208						ES		0 1671	22	08	85	CRO	ES 2	0		
0 802	MW	209						ES		0 1672	22	08	85	CRO	ES 2	0		
0 803	MW	284.	305.					ES		0 1673	22	08	85	CRO	ES 2	0		
0 804	MW	313.	410					ES		0 1674	22	08	85	CRO	ES 2	0		
0 805	MW	282.	285					ES		0 1675	22	08	85	CRO	ES 2	0		
0 806	MW	300	350					ES			22	08	85	CRO	ES 2	0		
0 807	BNT	343	640.			2	SC	ES		0 1676	22	08	85	CRO	ES 2	0		
0 808	RT	388	730.					ES		0 1677	22	08	85	CRO	ES 2	0		
0 809	RT	395	800					ES		0 1678	22	08	85	CRO	ES 2	0		
0 810	RT	349	580					ES		0 1679	22	08	85	CRO	ES 2	0		
0 811	RT	342	520					ES		0 1680	22	08	85	CRO	ES 2	0		
0 812	RT	355	610					ES		0 1681	22	08	85	CRO	ES 2	0		
0 813	RT	294	320					ES		0 1682	22	08	85	CRO	ES 2	0		
0 814	RT	330	540					ES		0 1683	22	08	85	CRO	ES 2	0		
0 815	BNT	250				1	SC	ES		0 1684	22	08	85	CRO	ES 2	0		
0 816	RT	209						ES			22	08	85	CRO	ES 2	0		
0 817	MW	95				0	LF	ES			22	08	85	CRO	ES 2	0		
0 818	MW	94				0	LF	ES			22	08	85	CRO	ES 2	0		
0 819	MW	93				0	LF	ES			22	08	85	CRO	ES 2	0		
0 820	RT	278	260	11		2	SB	ES			22	08	85	CRO	ES 2	1		
0 821	MW	373						ES			22	08	85	CRO	ES 2	0		
0 822	MW	306						ES			22	08	85	CRO	ES 2	0		
0 823	MW	318						ES			22	08	85	CRO	ES 2	0		
0 824	MW	271						ES			22	08	85	CRO	ES 2	0		
0 825	MW	367						ES			22	08	85	CRO	ES 2	0		
0 826	MW	238						ES			22	08	85	CRO	ES 2	0		
0 827	BNT	342	580			4	SC	ES		0 1685	22	08	85	CRO	ES 2	0		
0 828	BNT	410	880					ES		0 1686	22	08	85	CRO	ES 2	0		SCALES EMBEDDED
0 829	RT	414	920					ES		0 1687	22	08	85	CRO	ES 2	0		
0 830	RT	283	270					ES		0 1688	22	08	85	CRO	ES 2	0		
0 831	RT	401.	750					ES		0 1689	22	08	85	CRO	ES 2	0		
0 832	RT	322	420					ES		0 1690	22	08	85	CRO	ES 2	0		
0 833	RT	327	470					ES		0 1691	22	08	85	CRO	ES 2	0		
0 834	RT	274	330					ES		0 1692	22	08	85	CRO	ES 2	0		
0 835	RT	335	500					ES		0 1693	22	08	85	CRO	ES 2	0		
0 836	RT	204						ES			22	08	85	CRO	ES 2	0		
0 837	RT	222	170					ES		0 1694	22	08	85	CRO	ES 2	0		
0 838	MW	288						ES		0 1695	22	08	85	CRO	ES 2	0		
0 839	MW	337						ES		0 1696	22	08	85	CRO	ES 2	0		
0 840	RT	294						ES		0 1697	22	08	85	CRO	ES 2	0		
0 841	RT	345						ES		0 1699	22	08	85	CRO	ES 2	0		
0 842	MW	334						ES		0 1700	22	08	85	CRO	ES 2	0		
0 843	MW	140						ES			22	08	85	CRO	ES 2	0		
0 844	MW	272						ES		1698	22	08	85	CRO	ES 2	0		
0 845	BNT	363.	535	11		2	SB	ES			22	08	85	CRO	ES 2	1		
0 846	RT	356	700	16		3	SB	ES			22	08	85	CRO	ES 2	1		
0 847	MW	276						ES			22	08	85	CRO	ES 2	0		
0 848	MW	183						ES			22	08	85	CRO	ES 2	0		
0 849	MW	214						ES			22	08	85	CRO	ES 2	0		
0 850	MW	134						ES			22	08	85	CRO	ES 2	0		
0 851	BNT	345						ES		Y 4421	20	09	85	CRO	CNP3	0		RUN # 1
0 852	RT	310						ES		Y 4419	20	09	85	CRO	CNP3	0		
0 853	RT	248						ES		Y 4420	20	09	85	CRO	CNP3	0		
0 854	RT	200						ES			20	09	85	CRO	CNP3	0		
0 855	MW	245						ES			20	09	85	CRO	CNP3	0		
0 856	RT	63				0	LF	ES			20	09	85	CRO	CNP3	0		
0 857	RT	230						ES			20	09	85	CRO	CNP3	0		
0 858	BNT	263						ES			20	09	85	CRO	CNP3	0		
0 859	RT	248						ES			20	09	85	CRO	CNP3	0		
0 860	BNT	256						ES			20	09	85	CRO	CNP3	0		
0 861	RT	155						ES			20	09	85	CRO	CNP3	0		
0 862	RT	86				0	LF	ES			20	09	85	CRO	CNP3	0		
0 863	RT	493						ES			20	09	85	CRO	CNP3	0		
0 864	RT	325						ES			20	09	85	CRO	CNP3	0		
0 865	RT	231						ES			20	09	85	CRO	CNP3	0		
0 866	RT	272						ES			20	09	85	CRO	CNP3	0		
0 867	RT	333						ES			20	09	85	CRO	CNP3	0		
0 868	RT	283						ES			20	09	85	CRO	CNP3	0		
0 869	RT	299						ES			20	09	85	CRO	CNP3	0		
0 870	RT	298						ES			20	09	85	CRO	CNP3	0		
0 871	BNT	257						ES			20	09	85	CRO	CNP3	0		
0 872	RT	265						ES			20	09	85	CRO	CNP3	0		
0 873	RT	220						ES			20	09	85	CRO	CNP3	0		
0 874	RT	445						ES			20	09	85	CRO	CNP3	0		
0 875	RT	445						ES			20	09	85	CRO	CNP3	0		
0 876	RT	351						ES			20	09	85	CRO	CNP3	0		
0 877	RT	281						ES			20	09	85	CRO	CNP3	0		
0 878	RT	336						ES		0 1502	20	09	85	CRO	CNP3	2		
0 879	RT	342						ES			20	09	85	CRO	CNP3	0		
0 880	RT	208						ES			20	09	85	CRO	CNP3	0		
0 881	RT	195						ES			20	09	85	CRO	CNP3	0		
0 882	RT	197.						ES			20	09	85	CRO	CNP3	0		
0 883	BNT	231						ES			20	09	85	CRO	CNP3	0		
0 884	BNT	260						ES			20	09	85	CRO	CNP3	0		
0 885	MW	240						ES		0 1531	20	09	85	CRO	CNP3	2		
0 886	BNT	415		7				ES			20	09	85	CRO	CNP3	0		
0 887	RT	227						ES			20	09	85	CRO	CNP3	0		
0 888	RT	240						ES			20	09	85	CRO	CNP3	0		
0 889	BNT	342.						ES			20	09	85	CRO	CNP3	0		
0 890	RT	281.						ES			20	09	85	CRO	CNP3	0		
0 891	RT	218.						ES			20	09	85	CRO	CNP3	0		
0 892	BNT	236.						ES		0 1822	20	09	85	CRO	CNP3	2		
0 893	RT	240.						ES			20	09	85	CRO	CNP3	0		
0 894	BNT	233.						ES			20	09	85	CRO	CNP3	0		
0 895	RT	235.						ES			20	09	85	CRO	CNP3	0		
0 896	RT	224						ES			20	09	85	CRO	CNP3	0		

RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY SAMPLE NUMBER

SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY	MO	YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
D 897	RT	191						ES			20	09	85	CRC	CNP3	0		END RUN # 1
D 898	BNT	243						ES		D 1401	20	09	85	CRO	CNP3	0		START RUN # 2
D 899	RT	236						ES		D 1402	20	09	85	CRO	CNP3	0		
D 900	RT	215						ES			20	09	85	CRO	CNP3	0		
D 901	RT	189						ES			20	09	85	CRO	CNP3	0		
D 902	RT	407						ES		D 1403	20	09	85	CRO	CNP3	0		
D 903	RT	361						ES		D 1404	20	09	85	CRO	CNP3	0		
D 904	RT	218						ES			20	09	85	CRO	CNP3	0		
D 905	BNT	230						ES		D 1405	20	09	85	CRO	CNP3	0		
D 906	BNT	487						ES		D 1406	20	09	85	CRO	CNP3	0		
D 907	MW	332						ES		D 1515	20	09	85	CRO	CNP3	2		
D 908	RT	403						ES		D 1407	20	09	85	CRO	CNP3	0		
D 909	RT	414						ES		D 1408	20	09	85	CRO	CNP3	0		
D 910	RT	374						ES		D 1409	20	09	85	CRO	CNP3	0		
D 911	RT	285						ES		D 1410	20	09	85	CRO	CNP3	0		
D 912	RT	263						ES		D 1411	20	09	85	CRO	CNP3	0		
D 913	RT	207						ES			20	09	85	CRO	CNP3	0		
D 914	RT	340						ES		D 1412	20	09	85	CRO	CNP3	0		
D 915	RT	371						ES		D 1413	20	09	85	CRO	CNP3	0		
D 916	RT	332						ES		D 1414	20	09	85	CRO	CNP3	0		
D 917	RT	209						ES			20	09	85	CRO	CNP3	0		
D 918	RT	388						ES		D 1415	20	09	85	CRO	CNP3	0		
D 919	RT	225						ES			20	09	85	CRO	CNP3	0		
D 920	RT	341						ES		D 1416	20	09	85	CRO	CNP3	0		
D 921	RT	464						ES		D 1417	20	09	85	CRO	CNP3	0		
D 922	RT	227						ES		D 1418	20	09	85	CRO	CNP3	0		
D 923	RT	421		16				ES			20	09	85	CRO	CNP3	1		ST. FULL SNAILS
D 924	RT	291						ES		D 1419	20	09	85	CRO	CNP3	0		
D 925	RT	272						ES		D 1420	20	09	85	CRO	CNP3	0		
D 926	BNT	269						ES		D 1421	20	09	85	CRO	CNP3	0		END RUN # 2
D 927	RT	369						ES		D 1422	21	09	85	CRO	CNP3	0		START RUN # 3
D 928	RT	281						ES		D 1423	21	09	85	CRO	CNP3	0		
D 929	BNT	245						ES		D 1424	21	09	85	CRO	CNP3	0		
D 930	BNT	346						ES		D 1425	21	09	85	CRO	CNP3	0		
D 931	RT	262						ES		D 1426	21	09	85	CRO	CNP3	0		
D 932	RT	283						ES		D 1427	21	09	85	CRO	CNP3	0		
D 933	RT	290						ES		D 1428	21	09	85	CRO	CNP3	0		
D 934	BNT	241						ES		D 1429	21	09	85	CRO	CNP3	0		
D 935	BNT	244						ES		D 1430	21	09	85	CRO	CNP3	0		
D 936	BNT	238						ES		D 1431	21	09	85	CRO	CNP3	0		
D 937	BNT	228						ES		D 1432	21	09	85	CRO	CNP3	0		
D 938	BNT	225						ES		D 1433	21	09	85	CRO	CNP3	0		
D 939	BNT	231						ES		D 1434	21	09	85	CRO	CNP3	0		
D 940	RT	171						ES			21	09	85	CRO	CNP3	0		
D 941	RT	234						ES		D 1435	21	09	85	CRO	CNP2	0		
D 942	RT	175						ES			21	09	85	CRO	CNP3	0		
D 943	RT	298						ES		D 1436	21	09	85	CRO	CNP3	0		
D 944	RT	278						ES		D 1437	21	09	85	CRO	CNP3	0		
D 945	RT	343						ES		D 1438	21	09	85	CRO	CNP3	0		
D 946	RT	222						ES		D 1439	21	09	85	CRO	CNP3	0		
D 947	BNT	247						ES		D 1440	21	09	85	CRO	CNP3	0		
D 948	RT	227						ES		D 1441	21	09	85	CRO	CNP3	0		
D 949	BNT	229						ES		D 1442	21	09	85	CRO	CNP3	0		
D 950	BNT	265						ES		D 1443	21	09	85	CRO	CNP3	0		
D 951	RT	131						ES			21	09	85	CRO	CNP3	0		
D 952	RT	210						ES			21	09	85	CRO	CNP3	0		
D 953	RT	381						ES		D 1444	21	09	85	CRO	CNP3	0		
D 954	BNT	246						ES		D 1445	21	09	85	CRO	CNP3	0		
D 955	RT	216						ES			21	09	85	CRO	CNP3	0		
D 956	RT	134						ES			21	09	85	CRO	CNP3	0		
D 957	RT	345						ES			21	09	85	CRS	CNP3	0		
D 958	RT	445						ES		D 1446	21	09	85	CRO	CNP3	2		
D 959	RT	378						ES		D 1447	21	09	85	CRO	CNP3	0		
D 960	RT	336						ES		D 1448	21	09	85	CRO	CNP3	0		
D 961	RT	340						ES		D 1449	21	09	85	CRO	CNP3	0		
D 962	RT	285						ES		D 1450	21	09	85	CRO	CNP3	0		
D 963	BNT	220						ES		D 1701	21	09	85	CRO	CNP3	0		
D 964	RT	213						ES			21	09	85	CRO	CNP3	0		
D 965	RT	231						ES		D 1702	21	09	85	CRO	CNP3	0		
D 966	RT	186						ES			21	09	85	CRO	CNP3	0		
D 967	MW		326					ES		D 1529	21	09	85	CRO	CNP3	2		
D 968	RT	390						ES		D 1703	21	09	85	CRO	CNP3	0		
D 969	RT	451						ES		D 1704	21	09	85	CRO	CNP3	0		
D 970	RT	343						ES		D 1705	21	09	85	CRO	CNP3	0		
D 971	RT	306						ES		D 1706	21	09	85	CRO	CNP3	0		
D 972	RT	215						ES			21	09	85	CRO	CNP3	0		
D 973	RT	221						ES			21	09	85	CRO	CNP3	0		
D 974	RT	253						ES		D 1707	21	09	85	CRO	CNP3	0		
D 975	RT	343						ES		D 1708	21	09	85	CRO	CNP3	0		
D 976	RT	92				0	LP	ES			21	09	85	CRO	CNP3	0		END RUN # 3
D 977	MW	287						ES			22	09	85	CAS	CAP1	0		
D 978	RT	197						ES			22	09	85	CAS	CAP1	0		
D 979	DV	206						ES			22	09	85	CAS	CAP1	0		
D 980	RT	169						ES			22	09	85	CAS	CAP1	0		
D 981	MW	188						ES			22	09	85	CAS	CAP1	0		
D 982	RT	391						ES		D 1709	24	09	85	CRO	CNP3	0		
D 983	RT	356						ES		D 1710	24	09	85	CRO	CNP3	0		
D 984	RT	323						ES		D 1711	24	09	85	CRO	CNP3	0		
D 985	RT	384						ES		D 1712	24	09	85	CRO	CNP3	0		
D 986	RT	474						ES		D 1713	24	09	85	CRO	CNP3	0		
D 987	RT	268						ES		D 1714	24	09	85	CRO	CNP3	0		
D 988	RT	208						ES			24	09	85	CRO	CNP3	0		
D 989	RT	182						ES			24	09	85	CRO	CNP3	0		
D 990	BNT	203						ES			24	09	85	CRO	CNP3	0		
D 991	RT	216						ES			24	09	85	CRO	CNP3	0		
D 992	RT	233						ES		D 1715	24	09	85	CRO	CNP3	0		
D 993	RT	159						ES			24	09	85	CRO	CNP3	0		
D 994	RT	261						ES		D 1716	24	09	85	CRO	CNP3	0		
D 995	RT	260						ES		D 1717	24	09	85	CRO	CNP3	0		
D 996	RT	275						ES		D 1718	24	09	85	CRO	CNP3	0		
D 997	RT	238						ES		D 1719	24	09	85	CRO	CNP3	0		
D 998	RT	214						ES			24	09	85	CRO	CNP3	0		
D 999	RT	247						ES		D 1720	24	09	85	CRO	CNP3	0		
D1000	RT	242						ES		D 1721	24	09	85	CRO	CNP3	0		
D1001	RT	215						ES			24	09	85	CRO	CNP3	0		
D1002	RT	211						ES			24	09	85	CRO	CNP3	0		
D1003	RT	208						ES			24	09	85	CRO	CNP3	0		
D1004	RT	274						ES		D 1722	24	09	85	CRO	CNP3	0		
D1005	RT	408						ES		D 1723	24	09	85	CRO	CNP3	0		
D1006	RT	327						ES		D 1724	24	09	85	CRO	CNP3	0		
D1007	RT	286						ES		D 1725	24	09	85	CRO	CNP3	0		
D1008	RT	338						ES		D 1726	24	09	85	CRO	CNP3	0		

RL&L ENVIRONMENTAL SERVICES LTD
FISHERIES DATA - PRINT OUT BY SAMPLE NUMBER
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SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY	DATE MO	DATE YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
01009	RT	349						ES		0 1727	24	09	85	CRO	CMP3	0		
01010	RT	219						ES			24	09	85	CRO	CMP3	0		
01011	RT	444						ES		0 1728	24	09	85	CRO	CMP3	0		
01012	RT	448						ES		0 1729	24	09	85	CRO	CMP3	0		
01013	RT	304						ES		0 1730	24	09	85	CRO	CMP3	0		
01014	BNT	235						ES		0 1731	24	09	85	CRO	CMP3	0		
01015	RT	396						ES		0 1732	24	09	85	CRO	CMP3	0		
01016	RT	235						ES		0 1733	24	09	85	CRO	CMP3	0		
01017	DV	406						ES		0 1734	24	09	85	CAS	CAP1	0		
01018	RT	211						ES			24	09	85	CAS	CAP1	0		
01019	RT	128						ES			24	09	85	CAS	CAP1	0		
01020	RT	285						ES		0 1735	24	09	85	CAS	CAP1	0		
01021	RT	218						ES		0 1736	24	09	85	CAS	CAP1	0		
01022	RT	181						ES			24	09	85	CAS	CAP1	0		
01023	RT	189						ES			24	09	85	CAS	CAP1	0		
01024	RT	147						ES			28	09	85	CAS	CAP1	0		
01025	RT	98						ES			28	09	85	CAS	CAP1	0		
01026	RT	120						ES			28	09	85	CAS	CAP1	0		
01027	RT	131						ES			28	09	85	CAS	CAP1	0		
01028	RT	17						ES			28	09	85	CAS	CAP1	0		
01029	RT	147						ES			28	09	85	CAS	CAP1	0		
01030	RT	126						ES			28	09	85	CAS	CAP1	0		
01031	RT	139						ES			28	09	85	CAS	CAP1	0		
01032	RT	138						ES			28	09	85	CAS	CAP1	0		
01033	RT	160						ES			28	09	85	CAS	CAP1	0		
01034	RT	136						ES			28	09	85	CAS	CAP1	0		
01035	RT	390	730			3	SC	ES		0 1737	02	10	85	CRO	CMP2	0		
01036	RT	408	970			3	SC	ES		0 1738	02	10	85	CRO	CMP2	0		
01037	RT	75				0	LF	ES			02	10	85	CRO	CMP2	0		
01038	MW	316	380	7		5	SC	ES			02	10	85	CRO	CMP2	1		
01039	RT	445						ES		0 1446	02	10	85	CRO	CMP1	2		
01040	RT	239				1	SC	ES		0 1739	02	10	85	CRO	CMP1	0		
01041	RT	210				2	SC	ES			02	10	85	CRO	CMP1	0		
01042	BNT	273				1	SC	ES		0 1740	02	10	85	CRO	CMP1	0		
01043	MW	143						ES			02	10	85	CRO	CMP1	0		
01044	MW	160						ES			02	10	85	CRO	CMP1	0		
01045	MW	163						ES			02	10	85	CRO	CMP1	0		
01046	MW	141						ES			02	10	85	CRO	CMP1	0		
01047	MW	108				0	LF	ES			02	10	85	CRO	CMP1	0		
01048	BNT	356	630	11		2	SB	ES			02	10	85	CRO	CMP1	1		
01049	RT	362						ES		0 1741	02	10	85	CRO	CMP1	0		
01050	RT	366	850			2	SC	ES		0 1742	02	10	85	CRO	CMP1	0		
01051	RT	313	410			2	SC	ES		0 1743	02	10	85	CRO	CMP1	0		
01052	CT	286	1744			2	SC	ES		0 1744	02	10	85	CRO	CMP1	0		
01053	MW	143						ES			02	10	85	CRO	CMP1	0		
01054	MW	332	420	17		6	SC	ES		0 1745	02	10	85	CRO	CMP1	0		
01055	MW	165						ES			02	10	85	CRO	CMP1	0		
01056	MW	152				1	SC	ES			02	10	85	CRO	CMP1	0		
01057	MW	276		17			SC	ES		0 1746	02	10	85	CRO	CMP1	0		
01058	MW	110				0	LF	ES			02	10	85	CRO	CMP1	0		
01059	BNT	232	180	20		1	SC	ES		0 1747	02	10	85	CRO	CMP1	0		
01060	BNT	348	610	20		2	SC	ES		0 1748	02	10	85	CRO	CMP1	0		
01061	RT	72				0	LF	ES			02	10	85	CRO	CMP1	0		
01062	RT	368	740			2	SC	ES		0 1749	03	10	85	OLD	OMP1	0		RUN # 1
01063	RT	288	280			2	SC	ES		0 1750	03	10	85	OLD	OMP1	0		
01064	RT	149	40				SC	ES			03	10	85	OLD	OMP1	0		
01065	RT	173	60				SC	ES			03	10	85	OLD	OMP1	0		
01066	MW	279	280	17		3	SC	ES		0 7851	03	10	85	OLD	OMP1	0		RUN # 1
01067	MW	387	620	7		8	SC	ES		0 7852	03	10	85	OLD	OMP1	0		RUN # 2
01068	MW	285	290	19		4	SC	ES			03	10	85	OLD	OMP1	1		
01069	LING	735						ES		0 7853	03	10	85	OLD	OMP1	0		
01070	DV	361	530	11		3	SB	ES			03	10	85	OLD	OMP1	1		RUN # 3, ST-2RT JUV
01071	RT	400	960			3	SC	ES		0 7854	04	10	85	CRO	ES 2	0		
01072	RT	404	920			3	SC	ES		0 7855	04	10	85	CRO	ES 2	0		
01073	RT	382	860			3	SC	ES		0 7856	04	10	85	CRO	ES 2	0		
01074	RT	383	675			3	SC	ES		0 7857	04	10	85	CRO	ES 2	0		
01075	MW	308	350	17				ES		0 7858	04	10	85	CRO	ES 2	0		
01076	MW	285	360	8				ES		0 7859	04	10	85	CRO	ES 2	0		
01077	MW	310	300	7				ES		0 7860	04	10	85	CRO	ES 2	0		
01078	MW	283	290			4	SC	ES			04	10	85	CRO	ES 2	1		
01079	MW	275	280	7			SC	ES			04	10	85	CRO	ES 2	1		
01080	MW	300	290			4	SC	ES			04	10	85	CRO	ES 2	1		
01081	MW	235	180					ES			04	10	85	CRO	ES 2	0		
01082	MW	260	220					ES			04	10	85	CRO	ES 2	0		
01083	MW	241	185	7				ES			04	10	85	CRO	ES 2	1		
01084	MW	236	175					ES			04	10	85	CRO	ES 2	0		
01085	RT	137	20	99		1	SC	ES			04	10	85	CRO	ES 2	0		
01086	RT	336	530			2	SC	ES		0 7861	04	10	85	CRO	ES 2	0		
01087	RT	335	470			2	SC	ES		0 7862	04	10	85	CRO	ES 2	0		
01088	RT	496	1620					ES		0 7864	04	10	85	CRO	ES 2	0		SCALES EMBEDDED
01089	RT	156	40			1	SC	ES			04	10	85	CRO	ES 2	0		
01090	RT	82				0	SC	ES			04	10	85	CRO	ES 2	0		
01091	RT	375	700					ES		0 2409	04	10	85	CRO	ES 2	2		
01092	RT	329	550			2	SC	ES		0 7863	04	10	85	CRO	ES 2	0		
01093	RT	345	580			2	SC	ES		0 7865	04	10	85	CRO	ES 2	0		
01094	RT	270	275			2	SC	ES		0 7866	04	10	85	CRO	ES 2	0		
01095	BNT	111				0	SC	ES			04	10	85	CRO	ES 2	0		
01096	BNT	275	310	20		1	SC	ES		0 7867	04	10	85	CRO	ES 2	0		
01097	BNT	318	490	10		1	SC	ES		0 7868	04	10	85	CRO	ES 2	0		
01098	RT	324	540					ES		0 1523	04	10	85	CRO	ES 2	2		
01099	RT	374	740					ES		0 1409	04	10	85	CRO	ES 2	2		
01100	RT	473	1420			4	SC	ES		0 7869	04	10	85	CRO	ES 2	0		
01101	RT	304	400					ES		0 7870	04	10	85	CRO	ES 2	0		
01102	RT	347	675					ES		0 7871	04	10	85	CRO	ES 2	0		
01103	RT	382	785					ES		0 7872	04	10	85	CRO	ES 2	0		
01104	RT	344	670					ES		0 7873	04	10	85	CRO	ES 2	0		
01105	RT	271	300					ES		0 7874	04	10	85	CRO	ES 2	0		
01106	RT	319	510					ES		0 7875	04	10	85	CRO	ES 2	0		
01107	RT	207	110			1	SC	ES			04	10	85	CRO	ES 2	0		
01108	DV	186	80			2	SC	ES			04	10	85	CRO	ES 2	0		
01109	RT	419	1140					ES		0 7876	04	10	85	CRO	ES 2	0		
01110	RT	382	980					ES		0 7877	04	10	85	CRO	ES 2	0		
01111	RT	304	380					ES		0 7878	04	10	85	CRO	ES 2	0		
01112	RT	476	1520			4	SB	ES			04	10	85	CRO	ES 2	1		ST-28 LARGE PLECOPS
01113	RT	484	1550					ES		0 7880	04	10	85	CRO	ES 2	0		
01114	RT	318	500					ES		0 7881	04	10	85	CRO	ES 2	0		
01115	RT	337	580					ES		0 7882	04	10	85	CRO	ES 2	0		
01116	RT	326	560					ES		0 7883	04	10	85	CRO	ES 2	0		
01117	RT	314	440					ES		0 7884	04	10	85	CRO	ES 2	0		
01118	RT	518	1780					ES		0 7885	04	10	85	CRO	ES 2	0		
01119	RT	304	880					ES		0 7886	04	10	85	CRO	ES 2	0		
01120	RT	362	590					ES		0 7887	04	10	85	CRO	ES 2	0		

RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY SAMPLE NUMBER

SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO	DATE DAY	MO	YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
01121	RT	423	1090					ES		0 7988	04	10	85	CRO	ES 2	0		
01122	RT	337	840					ES		0 7989	04	10	85	CRO	ES 2	0		
01123	RT	336	540					ES		0 7990	04	10	85	CRO	ES 2	0		
01124	RT	163	60					ES			04	10	85	CRO	ES 2	0		
01125	MW	306	330	8				ES		0 7991	04	10	85	CRO	ES 2	0		
01126	BNT	465	1240	10		3	SC	ES		0 1862	04	10	85	CRO	ES 2	2		
01127	BNT	275	300					ES		0 7992	04	10	85	CRO	ES 2	0		
01128	BNT	391	980	6		2	SB	ES			04	10	85	CRO	RS 2	1		ST-PLECOPS, 1LND
01129	MW	312	390	17				ES		0 7993	04	10	85	CRO	ES 2	0		
01130	MW	382	810	17				ES		0 7994	04	10	85	CRO	ES 2	0		
01131	MW	268	280	7				ES		0 7995	04	10	85	CRO	ES 2	0		
01132	MW	304	340	7				ES		0 7996	04	10	85	CRO	ES 2	0		
01133	MW	328	440	7				ES		0 7997	04	10	85	CRO	ES 2	0		
01134	MW	239	180	7				ES			04	10	85	CRO	ES 2	0		
01135	MW	249	220	17				ES			04	10	85	CRO	ES 2	0		
01136	MW	252	210	17				ES			04	10	85	CRO	ES 2	0		
01137	RT	395	960					ES		0 7998	04	10	85	CRO	ES 2	0		
01138	BNT	245						ES		0 1424	04	10	85	CRO	ES 2	2		
01139	BNT	367	780	10				ES		0 1455	04	10	85	CRO	ES 2	1		
01140	BNT	261	275			1	SC	ES		0 7999	04	10	85	CRO	ES 2	0		
01141	BNT	268	230			1	SC	ES		0 8000	04	10	85	CRO	ES 2	0		
01142	BNT	255	260			1	SC	ES		0 7901	04	10	85	CRO	ES 2	0		
01143	MW	259	280					ES			04	10	85	CRO	ES 2	0		
01144	MW	113				0	LF	ES			04	10	85	CRO	ES 2	0		
01145	RT	495	1660			4	SC	ES		0 7902	04	10	85	CRO	ES 1	0		
01146	RT	353	700			2	SC	ES		0 7903	04	10	85	CRO	ES 1	0		
01147	RT	362						ES		0 7904	04	10	85	CRO	ES 1	0		
01148	MW	266	280	17				ES		0 7905	04	10	85	CRO	ES 1	0		
01149	RT	147	40			1	SC	ES			04	10	85	CRO	ES 1	0		
01150	MW	144	45					ES			04	10	85	CRO	ES 1	0		
01151	MW	268	260	8				ES			04	10	85	CRO	ES 1	0		
01152	MW	301	390	7				ES			04	10	85	CRO	ES 1	0		
01153	MW	261	230	18				ES			04	10	85	CRO	ES 1	0		
01154	MW	244	200					ES			04	10	85	CRO	ES 1	0		
01155	MW	265	210					ES			04	10	85	CRO	ES 1	0		
01156	MW	228	175					ES			04	10	85	CRO	ES 1	0		
01157	MW	212	130					ES			04	10	85	CRO	ES 1	0		
01158	RT	553	2380					ES		0 7906	04	10	85	CRO	ES 1	0		
01159	RT	554	2460					ES		0 7907	04	10	85	CRO	ES 1	0		
01160	RT	344	550					ES		0 7908	04	10	85	CRO	ES 1	0		
01161	RT	410	980					ES		0 7909	04	10	85	CRO	ES 1	0		
01162	RT	288	390					ES		0 7910	04	10	85	CRO	ES 1	0		
01163	RT	222	160					ES		0 7911	04	10	85	CRO	ES 1	0		
01164	MW	452	1300	17		10	SC	ES		0 7912	04	10	85	CRO	ES 1	0		
01165	MW	348	580	17				ES		0 7913	04	10	85	CRO	ES 1	0		
01166	MW	238		7				ES			04	10	85	CRO	ES 1	0		
01167	MW	274	300	17				ES			04	10	85	CRO	ES 1	0		
01168	MW	239	170	8				ES			04	10	85	CRO	ES 1	0		
01169	MW	289	280	7				ES		0 7914	04	10	85	CRO	ES 1	0		
01170	MW	253	140	7				ES			04	10	85	CRO	ES 1	0		
01171	MW	265	270	7				ES		0 7915	04	10	85	CRO	ES 1	0		
01172	MW	242	200	7				ES			04	10	85	CRO	ES 1	0		
01173	MW	238	170	7				ES			04	10	85	CRO	ES 1	0		
01174	MW	227	175	7				ES			04	10	85	CRO	ES 1	0		
01175	RT	340	480					ES		0 7916	04	10	85	CRO	ES 1	0		
01176	RT	330	550					ES		0 7917	04	10	85	CRO	ES 1	0		
01177	RT	445	1460					ES		0 7918	04	10	85	CRO	ES 1	0		
01178	RT	284	280					ES		0 7919	04	10	85	CRO	ES 1	0		
01179	BNT	247	200			1	SC	ES		0 7920	04	10	85	CRO	ES 1	0		
01180	MW	239	180	7				ES			04	10	85	CRO	ES 1	0		
01181	RT	290	355					ES		0 7921	04	10	85	CRO	ES 1	0		
01182	RT	205	90					ES			04	10	85	CRO	ES 1	0		
01183	RT	272	240					ES		0 7922	04	10	85	CRO	ES 1	0		
01184	RT	263	250					ES		0 7923	04	10	85	CRO	ES 1	0		
01185	RT	211	110					ES			04	10	85	CRO	ES 1	0		
01186	MW	240	190					ES			04	10	85	CRO	ES 1	0		
01187	RT	268	220					ES		0 7924	04	10	85	CRO	ES 1	0		
01188	RT	230	130					ES		0 7925	04	10	85	CRO	ES 1	0		
01189	MW	148						ES			04	10	85	CRO	ES 1	0		
01190	RT	249	215					ES		0 7926	04	10	85	CRO	ES 1	0		
01191	RT	344	680					ES		0 7927	04	10	85	CRO	ES 1	0		
01192	RT	363	750					ES		0 7928	04	10	85	CRO	ES 1	0		
01193	RT	255	220					ES		0 7929	04	10	85	CRO	ES 1	0		
01194	RT	250	280					ES		0 7930	04	10	85	CRO	ES 1	0		
01195	RT	347	500					ES		0 7931	04	10	85	CRO	ES 1	0		
01196	RT	248	190					ES		0 7932	04	10	85	CRO	ES 1	0		
01197	RT	329	480					ES		0 7933	04	10	85	CRO	ES 1	0		
01198	RT	254	200					ES		0 7934	04	10	85	CRO	ES 1	0		
01199	RT	259	230					ES		0 7935	04	10	85	CRO	ES 1	0		
01200	BNT	259	275					ES		0 7936	04	10	85	CRO	ES 1	0		
01201	RT	257	200					ES		0 7937	04	10	85	CRO	ES 1	0		
01202	DV	202	80					ES			04	10	85	CRO	ES 1	0		
01203	RT	488						ES		0 7938	04	10	85	CRO	ES 1	0		
01204	RT	486						ES		0 7940	04	10	85	CRO	ES 1	0		
01205	RT	320						ES		0 7941	04	10	85	CRO	ES 1	0		
01206	DV	459						ES		0 7939	04	10	85	CRO	ES 1	0		
01207	MW	307	330	17				ES			05	10	85	CRO	ES 3	0		
01208	MW	270	230					ES			05	10	85	CRO	ES 3	0		
01209	MW	264	240	7				ES			05	10	85	CRO	ES 3	0		
01210	MW	331	460	17				ES			05	10	85	CRO	ES 3	0		
01211	MW	276	255	7				ES			05	10	85	CRO	ES 3	0		
01212	MW	323	415	7				ES			05	10	85	CRO	ES 3	0		
01213	MW	301	325	7				ES			05	10	85	CRO	ES	0		
01214	MW	280	280					ES			05	10	85	CRO	ES 3	0		
01215	MW	322	395	7				ES			05	10	85	CRO	ES 3	1		
01216	RT	156	45					ES			05	10	85	CRO	ES 3	0		
01217	RT	152	30					ES			05	10	85	CRO	ES 3	0		
01218	RT	204	115					ES			05	10	85	CRO	ES 3	0		
01219	RT	381	840					ES		0 7942	05	10	85	CRO	ES 3	0		
01220	MW	402	960	7				ES		0 7943	05	10	85	CRO	ES 3	0		
01221	RT	180	75					ES			05	10	85	CRO	ES 3	0		
01222	MW	283	305	17				ES			05	10	85	CRO	ES 3	0		
01223	MW	288	340	17				ES			05	10	85	CRO	ES 3	0		
01224	MW	233	180	8				ES			05	10	85	CRO	ES 3	0		
01225	MW	276	280	17				ES			05	10	85	CRO	ES 3	0		
01226	MW	226	160	17				ES			05	10	85	CRO	ES 3	0		
01227	MW	234	175	17				ES			05	10	85	CRO	ES 3	0		
01228	MW	228	150	7				ES			05	10	85	CRO	ES 3	0		
01229	MW	165	50	99				ES			05	10	85	CRO	ES 3	0		
01230	MW	202	115	99				ES			05	10	85	CRO	ES 3	0		
01231	MW	160	60	99				ES			05	10	85	CRO	ES 3	0		
01232	MW	327	340					ES			05	10	85	CRO	ES 3	0		

RL&L ENVIRONMENTAL SERVICES LTD
FISHERIES DATA - PRINT OUT BY SAMPLE NUMBER
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SAMPLE NO.	SP	LENGTH (MM)	WEIGHT (G)	SEX-MAT	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO	DATE DAY	MO	YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
01233	MW	301	305					ES			05	10	85	CRO	ES 3	1		
01234	MW	349	480	17				ES			05	10	85	CRO	ES 3	0		
01235	MW	311	400	7				ES			05	10	85	CRO	ES 3	0		
01236	MW	316	415	17				ES			05	10	85	CRO	ES 3	0		
01237	MW	308	375	7				ES			05	10	85	CRO	ES 3	0		
01238	MW	274	295	17				ES			05	10	85	CRO	ES 3	0		
01239	BNT	581	2700					ES		0 7945	05	10	85	CRO	ES 3	0		
01240	MW	318	315					ES			05	10	85	CRO	ES 3	0		
01241	MW	355	680	17				ES			05	10	85	CRO	ES 3	0		
01242	MW	332	480	7				ES			05	10	85	CRO	ES 3	0		
01243	MW	360		17				ES			05	10	85	CRO	ES 3	0		
01244	MW	322	455	7				ES			05	10	85	CRO	ES 3	0		
01245	MW	271	245	8				ES			05	10	85	CRO	ES 3	0		
01246	MW	304	390	17				ES			05	10	85	CRO	ES 3	0		
01247	MW	303	370	7				ES			05	10	85	CRO	ES 3	0		
01248	MW	366	600	17				ES			05	10	85	CRO	ES 3	0		
01249	RT	380	810					ES		0 7944	05	10	85	CRO	ES 3	0		
01250	BNT	402	760	8				ES		0 7946	05	10	85	CRO	ES 3	0		SCALES EMBEDDED
01251	BNT	411	925	7				ES		0 7947	05	10	85	CRO	ES 3	0		
01252	BNT	269	255	10		1	SC	ES		0 7948	05	10	85	CRO	ES 3	0		
01253	MW	308	380	7				ES			05	10	85	CRO	ES 3	0		
01254	MW	303	320	7				ES			05	10	85	CRO	ES 3	0		
01255	MW	285	260	7				ES			05	10	85	CRO	ES 3	0		
01256	MW	305	340	7				ES			05	10	85	CRO	ES 3	0		
01257	MW	266	250	7				ES			05	10	85	CRO	ES 3	0		
01258	RT							ES		0 7949	05	10	85	CRO	ES 3	0		ESCAPED
01259	RT	237						ES		0 7950	05	10	85	CRO	ES 3	0		
01260	RT	459	1270					ES		0 1713	05	10	85	CRO	ES 3	2		
01261	RT	445	1180					ES		0 7851	05	10	85	CRO	ES 3	0		
01262	RT	355	565					ES		0 7852	05	10	85	CRO	ES 3	0		
01263	RT	290	320					ES		0 7853	05	10	85	CRO	ES 3	0		
01264	RT	369	750					ES		0 7854	05	10	85	CRO	ES 3	0		
01265	RT	413	980					ES		0 7855	05	10	85	CRO	ES 3	0		
01266	RT	318	460					ES			05	10	85	CRO	ES 3	1		MORTALITY
01267	RT	386	710					ES		0 1677	05	10	85	CRO	ES 3	1		
01268	RT	294	400					ES		0 7857	05	10	85	CRO	ES 3	0		
01269	RT	325	450					ES		0 1724	05	10	85	CRO	ES 3	2		
01270	RT	391						ES		0 1444	05	10	85	CRO	ES 3	1		
01271	RT	445	1240					ES		0 7858	05	10	85	CRO	ES 3	0		
01272	RT	455	1230					ES		0 7859	05	10	85	CRO	ES 3	0		
01273	RT	296	325					ES		0 7860	05	10	85	CRO	ES 3	0		
01274	RT	347	615					ES		0 7861	05	10	85	CRO	ES 3	0		
01275	RT	396	810					ES		0 7862	05	10	85	CRO	ES 3	0		
01276	RT	411	1010					ES		0 7863	05	10	85	CRO	ES 3	0		
01277	RT	162	40					ES			05	10	85	CRO	ES 3	0		
01278	BNT	253	195			1	SC	ES		0 7864	05	10	85	CRO	ES 3	0		
01279	RT	239	160					ES		0 7865	05	10	85	CRO	ES 3	0		
01280	BNT	443	1140	17		3	SC	ES		0 7866	05	10	85	CRO	ES 3A	0		
01281	BNT	526	1750	8				ES		0 7867	05	10	85	CRO	ES 3A	0		
01282	MW	371	675	8				ES		0 7868	05	10	85	CRO	ES 3A	0		
01283	RT	365	670					ES		0 7869	05	10	85	CRO	ES 3A	0		
01284	BNT	563		7				ES		0 7870	05	10	85	CRO	ES 3A	0		ESCAPED
01285	MW	429		17				ES		0 7871	05	10	85	CRO	ES 3A	0		
01286	RT	423	1175					ES		0 7872	05	10	85	CRO	ES 3A	0		
01287	RT	525	1950					ES		0 7873	05	10	85	CRO	ES 3A	0		
01288	MW	435	1230					ES		0 7874	05	10	85	CRO	ES 3A	0		
01289	RT	323	455					ES		0 7875	05	10	85	CRO	ES 3A	0		
01290	RT	341	643					ES		0 7876	05	10	85	CRO	ES 3A	0		
01291	RT	304	380					ES		0 7877	05	10	85	CRO	ES 3A	0		
01292	RT	320	420					ES		0 7878	05	10	85	CRO	ES 3A	0		
01293	BNT	392	815	10		2	SC	ES		0 7879	05	10	85	CRO	ES 3A	0		
01294	RT	73				0	LF	ES			05	10	85	CRO	ES 3A	0		
01295	RT	69				0	LF	ES			05	10	85	CRO	ES 3A	0		
01296	MW	275	233	17		3	SC	ES			06	10	85	CAS	ES 2	1		
01297	MW	334	507	17		6	SC	ES			06	10	85	CAS	ES 2	1		
01298	MW	305	412	8		6	SC	ES			06	10	85	CAS	ES 2	1		
01299	MW	179	52	99		2	SC	ES			06	10	85	CAS	ES 2	1		
01300	MW	79	4	99		0	LF	ES			06	10	85	CAS	ES 2	1		
01301	MW	90	6	99		0	SC	ES			06	10	85	CAS	ES 2	1		
01302	MW	81		99		0	LF	ES			06	10	85	CAS	ES 2	1		
01303	MW	79		99		0	LF	ES			06	10	85	CAS	ES 2	1		
01304	MW	83		99		0	LF	ES			06	10	85	CAS	ES 2	1		
01305	MW	74		99		0	LF	ES			06	10	85	CAS	ES 2	1		
01306	MW	78		99		0	LF	ES			06	10	85	CAS	ES 2	1		
01307	RT	115	16	99		1	SO	ES			06	10	85	CAS	ES 2	1		
01308	RT	139	28	99		1	SO	ES			06	10	85	CAS	ES 2	1		
01309	RT	126	22	99		1	SO	ES			06	10	85	CAS	ES 2	1		
01310	RT	135	28	99		1	SO	ES			06	10	85	CAS	ES 2	1		
01311	RT	200	92	11		2	SO	ES			06	10	85	CAS	ES 2	1		ST-3/4 FULL CORIX
01312	RT	204	96	1		2	SO	ES			06	10	85	CAS	ES 2	1		ST-1/4 FULL CORIX
01313	RT	186	65	1			SO	ES			06	10	85	CAS	ES 2	1		ST-1/2 FULL CORIX
01314	RT	247	194	11		2	SO	ES			06	10	85	CAS	ES 2	1		ST-FULL CORIX
01315	RT	237	156	11		2	SO	ES			06	10	85	CAS	ES 2	1		ST-3/4 FULL CORIX
01316	DV	268	163	1		2	SO	ES			06	10	85	CAS	ES 2	1		ST-1/4FULL FISH REM
01317	DV	462	1040			4	SC	ES		0 7856	10	10	85	CAS	ES 1	0		
01318	MW	213	130					ES			10	10	85	CAS	ES 1	0		
01319	MW	277	250	17				ES			10	10	85	CAS	ES 1	0		
01320	DV	327	435					ES		0 7880	10	10	85	CAS	ES 1	0		
01321	RT	315	400			3	SC	ES		0 7881	10	10	85	CAS	ES 1	0		
01322	MW	136	25					ES			10	10	85	CAS	ES 1	0		
01323	LING	525	960					ES		0 7882	10	10	85	CAS	ES 1	0		
01324	MW	314	325	8				ES		0 7883	10	10	85	CAS	ES 1	0		
01325	MW	380	660	8		7	SC	ES		0 7884	10	10	85	CAS	ES 1	0		
01326	MW	288	280	8		4	SC	ES		0 7885	10	10	85	CAS	ES 1	0		
01327	MW	295	300	8		4	SC	ES		0 7886	10	10	85	CAS	ES 1	0		
01328	MW	252	190	8		3	SC	ES		0 7887	10	10	85	CAS	ES 1	0		
01329	MW	278	255	8		5	SC	ES		0 7888	10	10	85	CAS	ES 1	0		
01330	MW	267	230	8		4	SC	ES		0 7889	10	10	85	CAS	ES 1	0		
01331	MW	281	245	8		3	SC	ES		0 7890	10	10	85	CAS	ES 1	0		
01332	MW	257	210	8		3	SC	ES		0 7891	10	10	85	CAS	ES 1	0		
01333	MW	185	60	99		2	SC	ES			10	10	85	CAS	ES 1	0		
01334	MW	245	180	99		4	SC	ES			10	10	85	CAS	ES 1	0		
01335	RT	223	140			2	SC	ES		0 7892	10	10	85	CAS	ES 1	0		
01336	RT	232	180			2	SC	ES		0 7893	10	10	85	CAS	ES 1	0		
01337	RT	161	45			1	SC	ES			10	10	85	CAS	ES 1	0		
01338	RT	172	70			2	SC	ES			10	10	85	CAS	ES 1	0		
01339	DV	357	510			3	SC	ES		0 7894	10	10	85	CAS	ES 1	0		
01340	RT	344	520			3	SC	ES		0 7895	10	10	85	CAS	ES 1	0		
01341	RT	288	218			3	SC	ES		0 7896	10	10	85	CAS	ES 1	0		
01342	RT	183	60			2	SC	ES			10	10	85	CAS	ES 1	0		
01343	RT	211	110			2	SC	ES		0 7897	10	10	85	CAS	ES 1	0		
01344	RT	231	125				SC	ES		0 7898	10	10	85	CAS	ES 1	0		

RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY SAMPLE NUMBER

SAMPLE NO	SP	LENGTH (MM)	WEIGHT (G)	SEX-MAT	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO	DATE DAY	MO	YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
01345	RT	163	55			2	SC	ES			10	10	85	CAS	ES 1	0		
01346	RT	149	35			2	SC	ES			10	10	85	CAS	ES 1	0		
01347	RT	129				1	SC	ES			10	10	85	CAS	ES 1	0		
01348	MW	171	50			2	SC	ES			10	10	85	CAS	ES 1	0		
01349	MW	242	155			3	SC	ES			10	10	85	CAS	ES 1	0		
01350	MW	143	40			1	SC	ES			10	10	85	CAS	ES 1	0		
01351	RT	145	45			1	SC	ES			10	10	85	CAS	ES 1	0		
01352	DV	152	30			1	SC	ES			10	10	85	CAS	ES 1	0		
01353	RT	419						ES		0 7899	17	10	85	CRO	CNP3	0		
01354	RT	389				3	SC	ES		0 7900	17	10	85	CRO	CNP3	0		
01355	MW	340		18				ES			17	10	85	CRO	CNP3	0		
01356	MW	291		8				ES			17	10	85	CRO	CNP3	0		
01357	MW	262		8				ES			17	10	85	CRO	CNP3	0		
01358	MW	317		8				ES			17	10	85	CRO	CNP3	0		
01359	MW	254		8				ES			17	10	85	CRO	CNP3	0		
01360	RT	531						ES		0 8778	17	10	85	CRO	CNP3	0		
01361	MW	312		18				ES			17	10	85	CRO	CNP3	0		
01362	MW	268						ES			17	10	85	CRO	CNP3	0		
01363	RT	419						ES		0 7978	17	10	85	CRO	CNP3	2		
01364	RT	371						ES		0 8677	17	10	85	CRO	CNP3	0		
01365	RT	389	780			3	SO	ES			17	10	85	CRO	CNP3	1		
01366	RT	437						ES		0 8879	17	10	85	CRO	CNP3	0		
01367	RT	475						ES		0 8880	17	10	85	CRO	CNP3	0		
01368	RT	481						ES		0 1713	17	10	85	CRO	CNP3	2		
01369	RT	403						ES		0 8881	17	10	85	CRO	CNP3	0		
01370	RT	322						ES		0 8882	17	10	85	CRO	CNP3	0		
01371	RT	346						ES		0 8883	17	10	85	CRO	CNP3	0		
01372	RT	367						ES		0 8884	17	10	85	CRO	CNP3	0		
01373	RT	347						ES		0 8885	17	10	85	CRO	CNP3	0		
01374	RT	305						ES		0 8886	17	10	85	CRO	CNP3	0		
01375	MW	318		17				ES			17	10	85	CRO	CNP3	0		
01376	MW	306		8				ES			17	10	85	CRO	CNP3	0		
01377	MW	272		8				ES			17	10	85	CRO	CNP3	0		
01378	MW	304		8				ES			17	10	85	CRO	CNP3	0		
01379	MW	293		8				ES			17	10	85	CRO	CNP3	0		
01380	MW	289		17				ES			17	10	85	CRO	CNP3	0		
01381	MW	322		17				ES			17	10	85	CRO	CNP3	0		
01382	RT	312						ES		0 8887	17	10	85	CRO	CNP3	0		
01383	BNT	305						ES		0 8888	17	10	85	CRO	CNP3	0		
01384	RT	328						ES		0 8889	17	10	85	CRO	CNP3	0		
01385	BNT	369		10				ES		0 8890	17	10	85	CRO	CNP3	0		
01386	MW	271		8				ES			17	10	85	CRO	CNP3	0		
01387	MW	265		17				ES			17	10	85	CRO	CNP3	0		
01388	MW	260		17				ES			17	10	85	CRO	CNP3	0		
01389	MW	291		8				ES			17	10	85	CRO	CNP3	0		
01390	MW	226		99				ES			17	10	85	CRO	CNP3	0		
01391	MW	259						ES			17	10	85	CRO	CNP3	0		
01392	MW	304		17				ES			17	10	85	CRO	CNP3	0		
01393	MW	297		8				ES			17	10	85	CRO	CNP3	0		
01394	MW	256		17				ES			17	10	85	CRO	CNP3	0		
01395	MW	271		17				ES			17	10	85	CRO	CNP3	0		
01396	MW	256		17				ES			17	10	85	CRO	CNP3	0		
01397	MW	221		8				ES			17	10	85	CRO	CNP3	0		
01398	MW	222		8				ES			17	10	85	CRO	CNP3	0		
01399	MW	307		8				ES			17	10	85	CRO	CNP3	0		
01400	MW	240		7				ES			17	10	85	CRO	CNP3	0		
01401	RT	419				3	SC	ES		0 8891	17	10	85	CRO	CNP3	0		
01402	BNT	539		18		5	SC	ES		0 8893	17	10	85	CRO	CNP3	0		EGG DIAM = 4 4 mm
01403	MW	322		8		5	SC	ES		0 8894	19	10	85	OLD	ES 1	0		ES1
01404	MW	311		8		5	SC	ES		0 8895	19	10	85	OLD	ES 1	0		
01405	MW	300		8		4	SC	ES		0 8896	19	10	85	OLD	ES 1	0		
01406	MW	284		8		4	SC	ES			19	10	85	OLD	ES 1	0		
01407	MW	265		8		3	SC	ES		0 8897	19	10	85	OLD	ES 1	0		
01408	MW	281		8		4	SC	ES		0 8898	19	10	85	OLD	ES 1	0		
01409	MW	262		8		3	SC	ES		0 8899	19	10	85	OLD	ES 1	0		
01410	MW	272		8			SC	ES		0 8900	19	10	85	OLD	ES 1	0		
01411	MW	285		9		4	SC	ES			19	10	85	OLD	ES 1	1		STMT
01412	RT	210				2	SC	ES			19	10	85	OLD	ES 1	0		
01413	MW	251		8		3	SC	ES		0 1751	19	10	85	OLD	ES 1	0		
01414	MW	276		8			SC	ES		0 1752	19	10	85	OLD	ES 1	0		
01415	MW	219		99		2	SC	ES			19	10	85	OLD	ES 1	0		
01416	RT	183				2	SC	ES			19	10	85	OLD	ES 1	0		
01417	RT	174				1	SC	ES			19	10	85	OLD	ES 1	0		
01418	RT	146				1	SC	ES			19	10	85	OLD	ES 1	0		
01419	RT	126				1	SC	ES			19	10	85	OLD	ES 1	0		
01420	RT	154				1	SC	ES			19	10	85	OLD	ES 1	0		
01421	RT	138				1	SC	ES			19	10	85	OLD	ES 1	0		
01422	MW	296		8			SC	ES		0 1757	19	10	85	OLD	ES 1	0		
01423	MW	269		8		3	SC	ES		0 1758	19	10	85	OLD	ES 1	0		
01424	MW	274		8		3	SC	ES		0 1759	19	10	85	OLD	ES 1	0		
01425	MW	272		8		4	SC	ES			19	10	85	OLD	ES 1	0		
01426	MW	243		8			SC	ES			19	10	85	OLD	ES 1	0		
01427	MW	160		99		1	SC	ES			19	10	85	OLD	ES 1	0		
01428	MW	152		99		1	SC	ES			19	10	85	OLD	ES 1	0		
01429	MW	153		99				ES			19	10	85	OLD	ES 1	0		
01430	MW	360		8		6	SC	ES		0 1571	19	10	85	OLD	ES 1	0		
01431	MW	314		8		5	SC	ES		0 1753	19	10	85	OLD	ES 1	0		
01432	MW	362		8				ES		0 1754	19	10	85	OLD	ES 1	0		
01433	MW	349		18		5	SC	ES		0 1755	19	10	85	OLD	ES 1	0		
01434	LING	451						ES		0 1756	19	10	85	OLD	ES 1	0		
01435	RT	170				1	SC	ES			19	10	85	OLD	ES 1	0		
01436	RT	159						ES			19	10	85	OLD	ES 1	0		
01437	RT	155						ES			19	10	85	OLD	ES 1	0		
01438	RT	175						ES			19	10	85	OLD	ES 1	0		
01439	RT	186						ES			19	10	85	OLD	ES 1	0		
01440	MW	333						ES		0 1762	19	10	85	OLD	ES 1	0		
01441	MW	298	305	19			SC	ES			19	10	85	OLD	ES 1	1		
01442	MW	284	240	8		4	SC	ES		0 1763	19	10	85	OLD	ES 1	0		
01443	MW	280	270	19			SC	ES		0 1764	19	10	85	OLD	ES 1	0		
01444	MW	278	245	19			SC	ES		0 1765	19	10	85	OLD	ES 1	0		
01445	MW	287	275	19			SC	ES		0 1766	19	10	85	OLD	ES 1	0		
01446	MW	263	215	19			SC	ES		0 1767	19	10	85	OLD	ES 1	0		
01447	MW	266	220	19			SC	ES		0 1768	19	10	85	OLD	ES 1	0		
01448	MW	273	235	8			SC	ES		0 1769	19	10	85	OLD	ES 1	0		
01449	MW	276	240	8			SC	ES		0 1770	19	10	85	OLD	ES 1	0		
01450	MW	288	270	8		4	SC	ES		0 1771	19	10	85	OLD	ES 1	0		
01451	MW	288	200	19		4	SC	ES		0 1772	19	10	85	OLD	ES 1	0		
01452	MW	283		8				ES		0 1773	19	10	85	OLD	ES 1	0		
01453	MW	250	180					ES		0 1774	19	10	85	OLD	ES 1	0		
01454	MW	250		19				ES		0 1775	19	10	85	OLD	ES 1	0		
01455	MW	233	148	8				ES			19	10	85	OLD	ES 1	0		
01456	MW	257	208	8				ES			19	10	85	OLD	ES 1	0		

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                                                    RL&L ENVIRONMENTAL SERVICES LTD.
                                                 FISHERIES DATA - PRINT OUT BY SAMPLE NUMBER
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SAMPLE SP     LENGTH   WEIGHT   SEX-  GONAD AGE AGE   CAPT MESH      TAG        DATE     LOCATION  SITE CAPT PRES         COMMENTS
  NO.          (MM)     (G)     MAT   WT(G)     METH  METH (CM)      NO     DAY MO YR                   CODE CODE
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01457 MW       257.      200.     8                    ES                    19 10 85   OLD      ES 1   0
01458 MW       218.      100.    99                    ES                    19 10 85   OLD      ES 1   0
01459 MW       220       120.    99                    ES                    19 10 85   OLD      ES 1   0
01460 MW       160               99                    ES                    19 10 85   OLD      ES 1   0
01461 MW       204        95.    99                    ES                    19 10 85   OLD      ES 1   0
01462 RT       374       630.                  3  SC   ES          0 1760    19 10 85   OLD      ES 1   0
01463 BNT      561      1860.    10               SC   ES          0 1761    19 10 85   OLD      ES 1   0
01464 BNT                                              ES          0 1425    24 09 85   CRO      CNP3   2
01465 BNT                                              ES          0 1432    24 09 85   CRO      CNP3   2
01466 BNT                                              ES          0 1433    24 09 85   CRO      CNP3   2
01467 RT                                               ES          0 1422    24 09 85   CRO      CNP3   2
01468 RT                                               ES          0 1436    24 09 85   CRO      CNP3   2
01469 RT                                               ES          0 1408    24 09 85   CRO      CNP3   2
01470 RT                                               ES          0 1417    24 09 85   CRO      CNP3   2
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* FISHERIES DATA - PRINTOUT BY SPECIES AND LOCATION *
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RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY SPECIES AND LOCATION

SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY	MO	YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
01042	BNT	273				1	SC	ES		0 1740	02	10	85	CRO	CNP1	0		
01058	BNT	232	180	20		1	SC	ES		0 1747	02	10	85	CRO	CNP1	0		
01048	BNT	356	630	11		2	SO	ES			02	10	85	CRO	CNP1	1		
01080	BNT	348	610	20		2	SC	ES		0 1748	02	10	85	CRO	CNP1	0		
01485	BNT							ES		0 1432	24	09	85	CRO	CNP3	2		
0 851	BNT	345						ES		Y 4421	20	09	85	CRO	CNP3	0		
01383	BNT	305						ES		0 8888	17	10	85	CRO	CNP3	0		RUN # 1
0 926	BNT	289						ES		0 1421	20	09	85	CRO	CNP3	0		
01402	BNT	539		18		5	SC	ES		0 8893	17	10	85	CRO	CNP3	0		END RUN # 2
0 871	BNT	257						ES			20	09	85	CRO	CNP3	0		EGG DIAM = 4 6 mm
01385	BNT	389		10				ES		0 8890	17	10	85	CRO	CNP3	0		
0 990	BNT	203						ES			24	09	85	CRO	CNP3	0		
01466	BNT							ES		0 1433	24	09	85	CRO	CNP3	2		
0 858	BNT	263						ES			20	09	85	CRO	CNP3	0		
01464	BNT							ES		0 1425	24	09	85	CRO	CNP3	2		
0 953	BNT	220						ES		0 1701	21	09	85	CRO	CNP3	0		
0 894	BNT	233						ES			20	09	85	CRO	CNP3	0		
01014	BNT	235						ES		0 1731	24	09	85	CRO	CNP3	0		
0 860	BNT	256						ES			20	09	85	CRO	CNP3	0		
0 947	BNT	247						ES		0 1440	21	09	85	CRO	CNP3	0		
0 883	BNT	231						ES			20	09	85	CRO	CNP3	0		
0 934	BNT	241						ES		0 1429	21	09	85	CRO	CNP3	0		
0 905	BNT	230						ES		0 1405	20	09	85	CRO	CNP3	0		
0 949	BNT	229						ES		0 1442	21	09	85	CRO	CNP3	0		
0 886	BNT	415		7				ES			20	09	85	CRO	CNP3	0		
0 929	BNT	245						ES		0 1424	21	09	85	CRO	CNP3	0		
0 898	BNT	243						ES		0 1401	20	09	85	CRO	CNP3	0		
0 954	BNT	246						ES		0 1445	21	09	85	CRO	CNP3	0		START RUN # 2
0 884	BNT	260						ES			20	09	85	CRO	CNP3	0		
0 937	BNT	228						ES		0 1432	21	09	85	CRO	CNP3	0		
0 906	BNT	467						ES		0 1406	20	09	85	CRO	CNP3	0		
0 950	BNT	249						ES		0 1443	21	09	85	CRO	CNP3	0		
0 889	BNT	342						ES			20	09	85	CRO	CNP3	0		
0 930	BNT	346						ES		0 1425	21	09	85	CRO	CNP3	0		
0 892	BNT	236						ES		0 1822	20	09	85	CRO	CNP3	2		
0 935	BNT	244						ES		0 1430	21	09	85	CRO	CNP3	0		
0 939	BNT	231						ES		0 1434	21	09	85	CRO	CNP3	0		
0 936	BNT	238						ES		0 1431	21	09	85	CRO	CNP3	0		
0 938	BNT	225						ES		0 1433	21	09	85	CRO	CNP3	0		
0 361	BNT	446	1180	14		3	SC	ES			19	08	85	CRO	ES 1	0		
01200	BNT	259	275					ES		0 7936	04	10	85	CRO	ES 1	0		
01179	BNT	247	200			1	SC	ES		0 7920	04	10	85	CRO	ES 1	0		
0 709	BNT	223	145			1	SC	ES		0 1609	22	08	85	CRO	ES 2	0		
0 233	BNT	356	700			2	SC	ES		0 1455	19	08	85	CRO	ES 2	0		
0 733	BNT	224	160			1	SC	ES		0 1622	22	08	85	CRO	ES 2	0		
0 807	BNT	343	640			2	SC	ES		0 1676	22	08	85	CRO	ES 2	0		
0 710	BNT	216	140			1	SC	ES			22	08	85	CRO	ES 2	0		
0 237	BNT	542	2440			5	SC	ES		0 1459	19	08	85	CRO	ES 2	0		
0 775	BNT	235				1	SC	ES		0 1650	22	08	85	CRO	ES 2	0		
01095	BNT	111				0	SC	ES			04	10	85	CRO	ES 2	0		
0 742	BNT	372	850			2	SC	ES		0 1627	22	08	85	CRO	ES 2	0		
0 234	BNT	457	1360			3	SC	ES		0 1458	19	08	85	CRO	ES 2	0		
0 789	BNT	439	1255			3	SC	ES		0 1660	22	08	85	CRO	ES 2	0		
0 845	BNT	363	630	11		2	SO	ES			22	08	85	CRO	ES 2	1		
0 776	BNT	260				1	SC	ES		0 1651	22	08	85	CRO	ES 2	0		
01126	BNT	465	1240	10		3	SC	ES		0 1662	04	10	85	CRO	ES 2	2		
0 791	BNT	455	1270			3	SC	ES		0 1662	22	08	85	CRO	ES 2	0		
0 815	BNT	250				1	SC	ES		0 1684	22	08	85	CRO	ES 2	0		
0 790	BNT	460	1560					ES		0 1661	22	08	85	CRO	ES 2	0		
01057	BNT	318	490	10		1	SC	ES		0 7968	04	10	85	CRO	ES 2	0		SCALES EMBEDDED
0 827	BNT	342	580			6	SC	ES		0 1685	22	08	85	CRO	ES 2	0		
01138	BNT	245						ES		0 1424	04	10	85	CRO	ES 2	2		
0 82[illegible]	BNT	410	880					ES		0 1688	22	08	85	CRO	ES 2	0		
01098	BNT	275	310	20		1	SC	ES		0 7967	04	10	85	CRO	ES 2	0		SCALES EMBEDDED
01127	BNT	275	300					ES		0 7992	04	10	85	CRO	ES 2	0		
01141	BNT	266	230			1	SC	ES		0 8000	04	10	85	CRO	ES 2	0		
01128	BNT	391	860	6		2	SO	ES			04	10	85	CRO	ES 2	1		
01139	BNT	367	780	10				ES		0 1455	04	10	85	CRO	ES 2	2		ST-PLECOPS, 1LND
01142	BNT	255	260			1	SC	ES		0 7901	04	10	85	CRO	ES 2	0		
01140	BNT	261	275			1	SC	ES		0 7999	04	10	85	CRO	ES 2	0		
0 513	BNT	237	205			1	SC	ES		0 1522	20	08	85	CRO	ES 3	0		
01278	BNT	253	195			1	SC	ES		0 7864	05	10	85	CRO	ES 3	0		
0 515	BNT	203	110			1	SC	ES			20	08	85	CRO	ES 3	0		
01250	BNT	402	760	8				ES		0 7946	05	10	85	CRO	ES 3	0		
0 514	BNT	219	140			1	SC	ES			20	08	85	CRO	ES 3	0		SCALES EMBEDDED
01239	BNT	581	2700					ES		0 7945	05	10	85	CRO	ES 3	0		
01251	BNT	411	925	7				ES		0 7947	05	10	85	CRO	ES 3	0		
01252	BNT	289	255	10		1	SC	ES		0 7948	05	10	85	CRO	ES 3	0		
01293	BNT	392	815	10		2	SC	ES		0 7879	05	10	85	CRO	ES 3A	0		
01281	BNT	526	1750	8				ES		0 7867	05	10	85	CRO	ES 3A	0		
01280	BNT	443	1140	17		3	SC	ES		0 7866	05	10	85	CRO	ES 3A	0		
01284	BNT	563		7				ES		0 7870	05	10	85	CRO	ES 3A	0		
01463	BNT	561	1860	10			SC	ES		0 1761	19	10	85	OLD	ES 1	0		ESCAPED
0 145	BNT	321	480			2	SC	ES		0 1387	18	08	85	OLD	ES 1	0		
0 199	BNT	323	480			2	SC	ES		0 1397	18	08	85	OLD	ES 1	0		
01052	CT	286	1744			2	SC	ES		0 1744	02	10	85	CRO	CNP1	0		
0 979	DV	206						ES			22	09	85	CAS	CAP1	0		
01017	DV	[illegible]						ES		0 1734	24	09	85	CAS	CAP1	0		
01352	DV	152	30			1	SC	ES			10	10	85	CAS	ES 1	0		
01317	DV	462	1040			8	SC	ES		0 7856	10	10	85	CAS	ES 1	0		
0 53	DV	237				2	SC	ES			17	08	85	CAS	ES 1	0		
0 26	DV	193		98		2	SC	ES			17	08	85	CAS	ES 1	0		
0 62	DV	317				3	SC	ES		0 1360	17	08	85	CAS	ES 1	0		
0 8	DV	180		98		1	SC	ES			17	08	85	CAS	ES 1	0		
01320	DV	327	435					ES		0 7880	10	10	85	CAS	ES 1	0		
01339	DV	357	510			3	SC	ES		0 7894	10	10	85	CAS	ES 1	0		
01316	DV	268	163	1		2	SO	ES			08	10	85	CAS	ES 2	1		
01206	DV	459						ES		0 7939	04	10	85	CRO	ES 1	0		ST-1/4FULL FISH REM
01202	DV	202	80					ES			04	10	85	CRO	ES 1	0		
01108	DV	196	80			2	SC	ES			04	10	85	CRO	ES 2	0		
0 128	DV	209				2	SC	ES			18	08	85	OLD	ES 1	0		
01070	DV	361	530	11		3	SO	ES			03	10	85	OLD	OMP1	1		
01323	LING	525	860					ES		0 7882	10	10	85	CAS	ES 1	0		RUN # 2, ST-2RT JUV
01434	LING	451						ES		0 1756	18	10	85	OLD	ES 1	0		
01069	LING	735						ES		0 7853	03	10	85	OLD	OMP1	0		
0 20	LNS	138		88				ES			17	08	85	CAS	ES 1	0		
0 21	LNS	365		97				ES			17	08	85	CAS	ES 1	0		
0 981	MW	168						ES			22	09	85	CAS	CAP1	0		
0 977	MW	287						ES			22	09	85	CAS	CAP1	0		
01325	MW	380	880	8		7	SC	ES		0 7884	10	10	85	CAS	ES 1	0		
01330	MW	267	230	8		6	SC	ES		0 7889	10	10	85	CAS	ES 1	0		
01318	MW	277	250	17				ES			10	10	85	CAS	ES 1	0		

RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY SPECIES AND LOCATION
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SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE			LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
											DAY	MO	YR					
01348	MW	171.	50.		.	2	SC	ES	.		10	10	85	CAS	ES	1	0	
01334	MW	245.	180.	98	.	4	SC	ES	.		10	10	85	CAS	ES	1	0	
0 30	MW	134.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
01326	MW	288.	280.	8	.	4	SC	ES	.	0 7885	10	10	85	CAS	ES	1	0	
0 93	MW	141.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
01322	MW	136.	25.		.			ES	.		10	10	85	CAS	ES	1	0	
0 77	MW	214.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
01331	MW	281.	245.	8	.	3	SC	ES	.	0 7890	10	10	85	CAS	ES	1	0	
01329	MW	278.	265.	8	.	5	SC	ES	.	0 7888	10	10	85	CAS	ES	1	0	
0 9	MW	184.	.	98	.	2	SC	ES	.		17	08	85	CAS	ES	1	0	
0 45	MW	130.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
01318	MW	213.	130.		.			ES	.		10	10	85	CAS	ES	1	0	
0 108	MW	141.	.		.			ES	.		17	08	85	CAS	ES	1	0	
0 13	MW	122.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 69	MW	248.	.		.			ES	.	0 1388	17	08	85	CAS	ES	1	0	
01333	MW	185.	60.	98	.	2	SC	ES	.		10	10	85	CAS	ES	1	0	
0 105	MW	201.	.		.			ES	.		17	08	85	CAS	ES	1	0	
0 3	MW	148.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 37	MW	266.	.		.			ES	.	0 1358	17	08	85	CAS	ES	1	0	
01332	MW	257.	210.	8	.	3	SC	ES	.	0 7881	10	10	85	CAS	ES	1	0	
0 117	MW	126.	.		.			ES	.		17	08	85	CAS	ES	1	0	
0 27	MW	281.	.		.	5	SC	ES	.	0 1356	17	08	85	CAS	ES	1	0	
0 85	MW	198.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
01327	MW	295.	300.	8	.	4	SC	ES	.	0 7836	10	10	85	CAS	ES	1	0	
0 97	MW	153.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 5	MW	141.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 57	MW	172.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
01328	MW	252.	190.	8	.	3	SC	ES	.	0 7887	10	10	85	CAS	ES	1	0	
0 113	MW	218.	.		.			ES	.		17	08	85	CAS	ES	1	0	
0 17	MW	176.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 65	MW	276.	.		.			ES	.	0 1363	17	08	85	CAS	ES	1	0	
01324	MW	314.	325.	8	.			ES	.	0 7883	10	10	85	CAS	ES	1	0	
0 107	MW	178.	.		.			ES	.		17	08	85	CAS	ES	1	0	
0 23	MW	317.	.	97	.	7	SC	ES	.	0 1352	17	08	85	CAS	ES	1	0	
0 33	MW	131.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 11	MW	116.	.	98	.	1	SC	ES	.		17	08	85	CAS	ES	1	0	
0 119	MW	147.	.		.			ES	.		17	08	85	CAS	ES	1	0	
0 15	MW	115.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 81	MW	188.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 4	MW	186.	.	98	.	2	SC	ES	.		17	08	85	CAS	ES	1	0	
0 95	MW	138.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 25	MW	307.	.		.			ES	.	0 1355	17	08	85	CAS	ES	1	0	
0 49	MW	129.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 6	MW	133.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 111	MW	198.	.		.			ES	.		17	08	85	CAS	ES	1	0	
0 19	MW	125.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 73	MW	243.	.		.			ES	.	0 1370	17	08	85	CAS	ES	1	0	
0 10	MW	185.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 106	MW	232.	.		.			ES	.		17	08	85	CAS	ES	1	0	
01350	MW	143.	40.		.	1	SC	ES	.		10	10	85	CAS	ES	1	0	
0 41	MW	225.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 12	MW	157.	.	98	.	2	SC	ES	.		17	08	85	CAS	ES	1	0	
0 118	MW	128.	.		.			ES	.		17	08	85	CAS	ES	1	0	
0 14	MW	138.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 89	MW	133.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 28	MW	231.	.		.			ES	.		17	08	85	CAS	ES	1	0	
0 59	MW	266.	.	97	.			ES	.	0 1374	17	08	85	CAS	ES	1	0	
0 18	MW	163.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 55	MW	230.	.		.	3	SC	ES	.		17	08	85	CAS	ES	1	0	
0 24	MW	372.	.	97	.	8	SC	ES	.	0 1354	17	08	85	CAS	ES	1	0	
0 115	MW	144.	.		.			ES	.		17	08	85	CAS	ES	1	0	
0 16	MW	155.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 63	MW	86.	.	98	.	0	LF	ES	.		17	08	85	CAS	ES	1	0	
01349	MW	242.	155.		.	3	SC	ES	.		10	10	85	CAS	ES	1	0	
0 108	MW	185.	.		.			ES	.		17	08	85	CAS	ES	1	0	
0 31	MW	174.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 120	MW	116.	.		.			ES	.		17	08	85	CAS	ES	1	0	
0 79	MW	221.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 94	MW	169.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 47	MW	133.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 110	MW	154.	.		.			ES	.		17	08	85	CAS	ES	1	0	
0 71	MW	264.	.		.			ES	.	0 1388	17	08	85	CAS	ES	1	0	
0 38	MW	300.	.	97	.			ES	.	0 1373	17	08	85	CAS	ES	1	0	
0 40	MW	228.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 114	MW	188.	.		.			ES	.		17	08	85	CAS	ES	1	0	
0 67	MW	131.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 56	MW	187.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 60	MW	137.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 112	MW	196.	.		.			ES	.		17	08	85	CAS	ES	1	0	
0 68	MW	253.	.		.			ES	.	0 1366	17	08	85	CAS	ES	1	0	
0 116	MW	200.	.		.			ES	.		17	08	85	CAS	ES	1	0	
0 35	MW	123.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 83	MW	185.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 51	MW	72.	.	98	.	0	LF	ES	.		17	08	85	CAS	ES	1	0	
0 75	MW	221.	.		.			ES	.	0 5849	17	08	85	CAS	ES	1	2	
0 43	MW	146.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 91	MW	125.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 56	MW	178.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 64	MW	260.	.		.			ES	.	0 1361	17	08	85	CAS	ES	1	0	
0 32	MW	172.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 78	MW	202.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 46	MW	134.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 70	MW	265.	.		.			ES	.	0 1367	17	08	85	CAS	ES	1	0	
0 38	MW	239.	.		.	3	SC	ES	.	0 1359	17	08	85	CAS	ES	1	0	
0 86	MW	220.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 58	MW	139.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 88	MW	260.	.		.			ES	.	0 1364	17	08	85	CAS	ES	1	0	
0 34	MW	126.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 82	MW	216.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 50	MW	77.	.	98	.	0	LF	ES	.		17	08	85	CAS	ES	1	0	
0 74	MW	235.	.		.			ES	.		17	08	85	CAS	ES	1	0	
0 42	MW	226.	.	91	.			ES	.		17	08	85	CAS	ES	1	0	
0 90	MW	147.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 48	MW	150.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 72	MW	230.	.		.			ES	.	0 1369	17	08	85	CAS	ES	1	0	
0 36	MW	150.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 80	MW	190.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 62	MW	72.	.	98	.	0	LF	ES	.		17	08	85	CAS	ES	1	0	
0 76	MW	213.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 44	MW	148.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 88	MW	142.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	
0 84	MW	188.	.	98	.			ES	.		17	08	85	CAS	ES	1	0	

RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY SPECIES AND LOCATION

SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE			LOCATION	SITE	CAPT CODE	FRES CODE	COMMENTS
											DAY	MO	YR					
0 92	MW	150.		98				ES			17	08	85	CAS	ES 1	0		
01297	MW	334	507.	17		6	SC	ES			08	10	85	CAS	ES 2	1		
01300	MW	78.	4.	99		0	LF	ES			08	10	85	CAS	ES 2	1		
01301	MW	90.	6.	99		0	SC	ES			08	10	85	CAS	ES 2	1		
01298	MW	305.	412.	8		6	SC	ES			08	10	85	CAS	ES 2	1		
01303	MW	79.		99		0	LF	ES			08	10	85	CAS	ES 2	1		
01302	MW	81.		99		0	LF	ES			08	10	85	CAS	ES 2	1		
01299	MW	179.	52.	99		2	SC	ES			08	10	85	CAS	ES 2	1		
01304	MW	83.		99		0	LF	ES			08	10	85	CAS	ES 2	1		
01305	MW	74.		99		0	LF	ES			08	10	85	CAS	ES 2	1		
01306	MW	78.		99		0	LF	ES			08	10	85	CAS	ES 2	1		
01296	MW	275.	233.	17		3	SC	ES			08	10	85	CAS	ES 2	1		
01043	MW	143.						ES			02	10	85	CRO	CNP1	0		
01053	MW	143.						ES			02	10	85	CRO	CNP1	0		
01065	MW	162.						ES			02	10	85	CRO	CNP1	0		
01057	MW	278.		17			SC	ES		0 1748	02	10	85	CRO	CNP1	0		
01044	MW	160.						ES			02	10	85	CRO	CNP1	0		
01055	MW	185						ES			02	10	85	CRO	CNP1	0		
01047	MW	108				0	LF	ES			02	10	85	CRO	CNP1	0		
01058	MW	110				0	LF	ES			02	10	85	CRO	CNP1	0		
01046	MW	141						ES			02	10	85	CRO	CNP1	0		
01054	MW	332	420.	17		8	SC	ES		0 1745	02	10	85	CRO	CNP1	0		
01056	MW	152.				1	SC	ES			02	10	85	CRO	CNP1	0		
01038	MW	318.	380.	7		6	SC	ES			02	10	85	CRO	CNP2	1		
01355	MW	[illegible]		18				ES			17	10	85	CRO	CNP3	0		
01388	MW	260		17				ES			17	10	85	CRO	CNP3	0		
01357	MW	262		8				ES			17	10	85	CRO	CNP3	0		
01361	MW	312		18				ES			17	10	85	CRO	CNP3	0		
01398	MW	222		8				ES			17	10	85	CRO	CNP3	0		
0 907	MW	332						ES		0 1515	20	09	85	CRO	CNP3	2		
01376	MW	306		8				ES			17	10	85	CRO	CNP3	0		
01356	MW	291		8				ES			17	10	85	CRO	CNP3	0		
01386	MW	271		8				ES			17	10	85	CRO	CNP3	0		
0 987	MW		326.					ES		0 1529	21	08	85	CRO	CNP3	2		
01380	MW	289		17				ES			17	10	85	CRO	CNP3	0		
01387	MW	265		17				ES			17	10	85	CRO	CNP3	0		
01358	MW	317		8				ES			17	10	85	CRO	CNP3	0		
0 855	MW	245						ES			20	09	85	CRO	CNP3	0		
01400	MW	240		7				ES			17	10	85	CRO	CNP3	0		
01397	MW	221		8				ES			17	10	85	CRO	CNP3	0		
01362	MW	268						ES			17	10	85	CRO	CNP3	0		
01379	MW	293		8				ES			17	10	85	CRO	CNP3	0		
01396	MW	256		17				ES			17	10	85	CRO	CNP3	0		
01381	MW	322		17				ES			17	10	85	CRO	CNP3	0		
01390	MW	226		99				ES			17	10	85	CRO	CNP3	0		
0 885	MW	240						ES		0 1531	20	08	85	CRO	CNP3	2		
01392	MW	304		17				ES			17	10	85	CRO	CNP3	0		
01393	MW	297		8				ES			17	10	85	CRO	CNP3	0		
01378	MW	304		8				ES			17	10	85	CRO	CNP3	0		
01375	MW	318		17				ES			17	10	85	CRO	CNP3	0		
01394	MW	256		17				ES			17	10	85	CRO	CNP3	0		
01395	MW	271		17				ES			17	10	85	CRO	CNP3	0		
01359	MW	254		8				ES			17	10	85	CRO	CNP3	0		
01389	MW	291		8				ES			17	10	85	CRO	CNP3	0		
01391	MW	259						ES			17	10	85	CRO	CNP3	0		
01377	MW	272		8				ES			17	10	85	CRO	CNP3	0		
01399	MW	307		8				ES			17	10	85	CRO	CNP3	0		
0 285	MW	201						ES			19	08	85	CRO	ES 1	0		
0 253	MW	252.	230.					ES		0 1464	19	08	85	CRO	ES 1	0		
0 413	MW	142				1	SC	ES			19	08	85	CRO	ES 1	0		
01150	MW	144	45.					ES			04	10	85	CRO	ES 1	0		
0 381	MW	185.						ES			19	08	85	CRO	ES 1	0		
0 245	MW	200.	100.					ES			19	08	85	CRO	ES 1	0		
0 417	MW	150.						ES			19	08	85	CRO	ES 1	0		
01188	MW	240.	180.					ES			04	10	85	CRO	ES 1	0		
0 317	MW	383.	600.			7	SC	ES		0 1473	19	08	85	CRO	ES 1	0		
0 277	MW	228.	180.					ES			19	08	85	CRO	ES 1	0		
0 415	MW	168						ES			19	08	85	CRO	ES 1	0		
01148	MW	288	280.	17				ES		0 7905	04	10	85	CRO	ES 1	0		
0 365	MW	219	160.			2	SC	ES			19	08	85	CRO	ES 1	0		
0 242	MW	214	140					ES			19	08	85	CRO	ES 1	0		
0 414	MW	151						ES			19	08	85	CRO	ES 1	0		
01189	MW	146						ES			04	10	85	CRO	ES 1	0		
0 301	MW	209						ES			19	08	85	CRO	ES 1	0		
0 261	MW	152						ES			19	08	85	CRO	ES 1	0		
0 416	MW	150						ES			19	08	85	CRO	ES 1	0		
01165	MW	346	550	17				ES		0 7813	04	10	85	CRO	ES 1	0		
0 397	MW	338	520	6		5	SC	ES			19	08	85	CRO	ES 1	1		
0 249	MW	204	120.					ES			19	08	85	CRO	ES 1	0		
0 333	MW	327	450	16		4	SC	ES			19	08	85	CRO	ES 1	1		
01157	MW	212	130.					ES			04	10	85	CRO	ES 1	0		
0 349	MW	207						ES			19	08	85	CRO	ES 1	0		
0 281	MW	208	100.					ES			19	08	85	CRO	ES 1	0		
0 293	MW	180						ES			19	08	85	CRO	ES 1	0		
01173	MW	238	170.	7				ES			04	10	85	CRO	ES 1	0		
0 389	MW	354	500			6	SC	ES		0 1490	19	08	85	CRO	ES 1	0		
0 243	MW	213	140.					ES			19	08	85	CRO	ES 1	0		
0 325	MW	179						ES			19	08	85	CRO	ES 1	0		
01153	MW	261	230.	18				ES			04	10	85	CRO	ES 1	0		
0 380	MW	205						ES			19	08	85	CRO	ES 1	0		
0 257	MW	173.						ES			19	08	85	CRO	ES 1	0		
0 309	MW	211	130.	11		2	SC	ES			19	08	85	CRO	ES 1	0		
01169	MW	289	240.	7				ES		0 7814	04	10	85	CRO	ES 1	0		
0 405	MW	225.					SC	ES			19	08	85	CRO	ES 1	0		
0 247	MW	171	70.					ES			19	08	85	CRO	ES 1	0		
0 341	MW	181.						ES			19	08	85	CRO	ES 1	0		
01164	MW	452	1300.	17		10	SC	ES		0 7812	04	10	85	CRO	ES 1	0		
0 357	MW	140						ES			19	08	85	CRO	ES 1	0		
0 279	MW	221	180.					ES			19	08	85	CRO	ES 1	0		
0 289	MW	212.	140.					ES			19	08	85	CRO	ES 1	0		
01180	MW	239.	180.	7				ES			04	10	85	CRO	ES 1	0		
0 385	MW	257.	160.					ES		0 1486	19	08	85	CRO	ES 1	0		
0 244	MW	280.	240.					ES		0 1482	19	08	85	CRO	ES 1	0		
0 322	MW	150.						ES			19	08	85	CRO	ES 1	0		
01151	MW	288	260.	7				ES			04	10	85	CRO	ES 1	0		
0 370	MW	249	220.	18			SC	ES			19	08	85	CRO	ES 1	1		
0 265	MW	204.						ES			19	08	85	CRO	ES 1	0		
0 307	MW	138.						ES			19	08	85	CRO	ES 1	0		
01187	MW	274.	300.	17				ES			04	10	85	CRO	ES 1	0		
0 402	MW	209.	130.			3	SC	ES			19	08	85	CRO	ES 1	0		
0 281	MW	212.	110.					ES			19	08	85	CRO	ES 1	0		
0 337	MW	188.						ES			19	08	85	CRO	ES 1	0		

RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY SPECIES AND LOCATION

SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY MO YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
01156	MW	285.	210.		.			ES	.		04 10 85	CRO	ES 1	0		
0 353	MW	143.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 283	MW	203.	80.		.			ES	.		19 08 85	CRO	ES 1	0		
0 297	MW	193.	120.		.			ES	.		19 08 85	CRO	ES 1	0		
01174	MW	227.	175.	7	.			ES	.		04 10 85	CRO	ES 1	0		
0 393	MW	250.	200.		.	3	SC	ES	.	0 1484	19 08 85	CRO	ES 1	0		
0 246	MW	180.	60.		.			ES	.		19 08 85	CRO	ES 1	0		
0 329	MW	200.	.		.			ES	.		19 08 85	CRO	ES 1	0		
01152	MW	301.	390.	7	.			ES	.		04 10 85	CRO	ES 1	0		
0 383	MW	310.	400.		.	8	SC	ES	.	0 1479	19 08 85	CRO	ES 1	0		
0 255	MW	208.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 313	MW	180.	40.		.		SC	ES	.		19 08 85	CRO	ES 1	0		
01171	MW	285.	270.	7	.			ES	.	0 7515	04 10 85	CRO	ES 1	0		
0 409	MW	149.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 250	MW	151.	30.		.			ES	.		19 08 85	CRO	ES 1	0		
0 345	MW	180.	.		.			ES	.		19 08 85	CRO	ES 1	0		
01154	MW	244.	200.		.			ES	.		04 10 85	CRO	ES 1	0		
0 351	MW	173.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 278	MW	225.	180.		.			ES	.		19 08 85	CRO	ES 1	0		
0 287	MW	220.	150.		.			ES	.		19 08 85	CRO	ES 1	0		
01186	MW	238.	.	7	.			ES	.		04 10 85	CRO	ES 1	0		
0 383	MW	151.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 248	MW	246.	200.		.			ES	.	0 1463	19 08 85	CRO	ES 1	0		
0 318	MW	338.	500.		.	5	SC	ES	.	0 1474	19 08 85	CRO	ES 1	0		
01156	MW	228.	175.		.			ES	.		04 10 85	CRO	ES 1	0		
0 359	MW	146.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 263	MW	231.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 303	MW	215.	.		.			ES	.		19 08 85	CRO	ES 1	0		
01170	MW	253.	140.	7	.			ES	.		04 10 85	CRO	ES 1	0		
0 399	MW	238.	260.	16	.		SC	ES	.		19 08 85	CRO	ES 1	1		
0 252	MW	122.	20.		.			ES	.		19 08 85	CRO	ES 1	0		
0 335	MW	177.	.		.			ES	.		19 08 85	CRO	ES 1	0		
01168	MW	239.	170.	8	.			ES	.		04 10 85	CRO	ES 1	0		
0 355	MW	131.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 282	MW	210.	100.		.			ES	.		19 08 85	CRO	ES 1	0		
0 295	MW	171.	.		.			ES	.		19 08 85	CRO	ES 1	0		
01172	MW	242.	200.	7	.			ES	.		04 10 85	CRO	ES 1	0		
0 391	MW	311.	480.		.	4	SC	ES	.	0 1492	19 08 85	CRO	ES 1	0		
0 259	MW	208.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 327	MW	188.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 280	MW	276.	170.		.			ES	.		19 08 85	CRO	ES 1	0		
0 362	MW	385.	850.		.	6	SC	ES	.	0 1478	19 08 85	CRO	ES 1	0		
0 257	MW	156.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 311	MW	175.	70.	1	.	1	SC	ES	.		19 08 85	CRO	ES 1	0		
0 384	MW	213.	120.		.			ES	.		19 08 85	CRO	ES 1	0		
0 407	MW	149.	50.		.	1	SC	ES	.		19 08 85	CRO	ES 1	0		
0 254	MW	240.	180.		.			ES	.	0 1465	19 08 85	CRO	ES 1	0		
0 343	MW	142.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 262	MW	171.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 350	MW	155.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 258	MW	220.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 291	MW	182.	100.		.			ES	.		19 08 35	CRO	ES 1	0		
0 266	MW	221.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 387	MW	278.	380.		.	3	SC	ES	.	0 1487	19 08 85	CRO	ES 1	0		
0 256	MW	244.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 323	MW	151.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 264	MW	199.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 358	MW	145.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 260	MW	163.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 308	MW	250.	210.	16	.		SC	ES	.		19 08 85	CRO	ES 1	0		
0 268	MW	169.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 403	MW	138.	30.		.	1	SC	ES	.		19 08 85	CRO	ES 1	0		
0 339	MW	140.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 354	MW	152.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 289	MW	211.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 395	MW	273.	260.		.	3	SC	ES	.	0 1496	19 08 85	CRO	ES 1	0		
0 331	MW	155.	.		.			ES	.		19 06 85	CRO	ES 1	0		
0 352	MW	187.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 315	MW	141.	25.		.		SC	ES	.		19 08 85	CRO	ES 1	0		
0 411	MW	151.	.		.	1	SC	ES	.		19 08 85	CRO	ES 1	0		
0 347	MW	203.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 356	MW	152.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 286	MW	216.	140.		.			ES	.		19 08 85	CRO	ES 1	0		
0 382	MW	165.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 324	MW	214.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 398	MW	275.	330.	16	.	3	SC	ES	.		19 08 85	CRO	ES 1	1		
0 302	MW	218.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 394	MW	270.	280.		.	3	SC	ES	.	0 1495	19 08 85	CRO	ES 1	0		
0 334	MW	163	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 406	MW	165.	60.		.		SC	ES	.		19 08 85	CRO	ES 1	0		
0 284	MW	210.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 385	MW	280.	260.		.			ES	.	0 1488	19 08 85	CRO	ES 1	0		
0 326	MW	151.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 404	MW	141.	35.		.			ES	.		19 08 85	CRO	ES 1	0		
0 310	MW	204.	110.	11	.	2	SC	ES	.		19 08 85	CRO	ES 1	0		
0 396	MW	239.	180.		.	3	SC	ES	.	0 1497	19 08 85	CRO	ES 1	0		
0 342	MW	206.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 410	MW	153.	30.		.			ES	.		19 08 85	CRO	ES 1	0		
0 290	MW	184.	100.		.			ES	.		19 08 85	CRO	ES 1	0		
0 384	MW	151.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 330	MW	146.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 400	MW	222.	140.	1	.	2	SC	ES	.		19 08 85	CRO	ES 1	1		
0 304	MW	144.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 388	MW	322.	390.		.	5	SC	ES	.	0 1489	19 08 85	CRO	ES 1	0		
0 338	MW	149.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 408	MW	148.	.		.	1	SC	ES	.		19 08 85	CRO	ES 1	0		
0 298	MW	160.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 412	MW	138.	30.		.			ES	.		19 08 85	CRO	ES 1	0		
0 328	MW	207.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 314	MW	148.	40.		.		SC	ES	.		19 08 85	CRO	ES 1	0		
0 348	MW	153.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 288	MW	204.	110.		.			ES	.		19 08 85	CRO	ES 1	0		
0 332	MW	155.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 312	MW	156.	40.	89	.	1	SC	ES	.		19 08 85	CRO	ES 1	0		
0 336	MW	159.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 296	MW	209.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 344	MW	151.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 300	MW	202.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 340	MW	188.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 346	MW	132.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 788	MW	384.	.		.			ES	.	0 1869	22 08 85	CRO	ES 2	0		
0 700	MW	299.	350.		.			ES	.	0 1800	22 08 85	CRO	ES 2	0		

RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY SPECIES AND LOCATION
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SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY MO YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
0 230	MW	265.	280.		.			ES	.	0 1454	19 08 85	CRD	ES 2	0		
0 749	MW	285.	.		.			ES	.	0 1634	22 08 85	CRD	ES 2	0		
01077	MW	310.	300.	7	.			ES	.	0 7989	04 10 85	CRD	ES 2	0		
0 717	MW	234.	170.		.			ES	.		22 08 85	CRD	ES 2	0		
0 240	MW	184.	70.		.			ES	.		19 08 85	CRD	ES 2	0		
0 765	MW	228.	.		.			ES	.		22 08 85	CRD	ES 2	0		
0 838	MW	288.	.		.			ES	.	0 1695	22 08 85	CRD	ES 2	0		
0 708	MW	279.	300.		.			ES	.	0 1604	22 08 85	CRD	ES 2	0		
0 231	MW	180.	60.		.			ES	.		19 08 85	CRD	ES 2	0		
0 737	MW	92.	.		.	0	LF	ES	.		22 08 85	CRD	ES 2	0		
01129	MW	312.	380.	17	.			ES	.	0 7993	04 10 85	CRD	ES 2	0		
0 721	MW	234.	145.		.			ES	.	0 1614	22 08 85	CRD	ES 2	0		
0 241	MW	182.	70.		.			ES	.		19 08 85	CRD	ES 2	0		
0 782	MW	250.	.		.			ES	.	0 1654	22 08 85	CRD	ES 2	0		
0 821	MW	373.	.		.			ES	.		22 08 85	CRD	ES 2	0		
0 713	MW	326.	430.		.			ES	.	0 1610	22 08 85	CRD	ES 2	0		
0 232	MW	190.	90.		.			ES	.		19 08 85	CRD	ES 2	0		
0 757	MW	240.	.		.			ES	.	0 1642	22 08 85	CRD	ES 2	0		
01075	MW	308.	350.	17	.			ES	.	0 7958	04 10 85	CRD	ES 2	0		
0 719	MW	269.	240.		.			ES	.	0 1612	22 08 85	CRD	ES 2	0		
0 849	MW	214.	.		.			ES	.		22 08 85	CRD	ES 2	0		
0 757	MW	173.	.		.			ES	.		22 08 85	CRD	ES 2	0		
01133	MW	326.	440.	7	.			ES	.	0 7997	04 10 85	CRD	ES 2	0		
0 715	MW	219.	140.		.			ES	.		22 08 85	CRD	ES 2	0		
0 806	MW	262.	255.		.			ES	.	0 1675	22 08 85	CRD	ES 2	0		
0 745	MW	348.	.		.			ES	.	0 1630	22 08 85	CRD	ES 2	0		
01081	MW	235.	160.		.			ES	.		04 10 85	CRD	ES 2	0		
0 723	MW	203.	90.		.			ES	.		22 08 85	CRD	ES 2	0		
0 842	MW	334.	.		.			ES	.	0 1700	22 08 85	CRD	ES 2	0		
0 785	MW	337.	.		.			ES	.	0 1657	22 08 85	CRD	ES 2	0		
01125	MW	308.	330.	8	.			ES	.	0 7991	04 10 85	CRD	ES 2	0		
0 714	MW	250.	240.		.			ES	.	0 1611	22 08 85	CRD	ES 2	0		
0 817	MW	88.	.		.	0	LF	ES	.		22 08 85	CRD	ES 2	0		
0 753	MW	253.	.		.			ES	.	0 1638	22 08 85	CRD	ES 2	0		
01076	MW	295.	350.	8	.			ES	.	0 7959	04 10 85	CRD	ES 2	0		
0 718	MW	219.	160		.			ES	.		22 08 85	CRD	ES 2	0		
0 847	MW	276.	.		.			ES	.		22 08 85	CRD	ES 2	0		
0 766	MW	163.	.		.			ES	.		22 08 85	CRD	ES 2	0		
01143	MW	259.	280.		.			ES	.		04 10 85	CRD	ES 2	0		
0 716	MW	228.	160.		.			ES	.		22 08 85	CRD	ES 2	0		
0 801	MW	208.	.		.			ES	.	0 1671	22 08 85	CRD	ES 2	0		
0 735	MW	80.	.		.	0	LF	ES	.		22 08 85	CRD	ES 2	0		
01079	MW	275.	280.	7	.		SC	ES	.		04 10 85	CRD	ES 2	1		
0 722	MW	175.	60.		.			ES	.		22 08 85	CRD	ES 2	0		
0 839	MW	337.	.		.			ES	.	0 1696	22 08 85	CRD	ES 2	0		
0 783	MW	328.	.		.			ES	.	0 1655	22 08 85	CRD	ES 2	0		
01131	MW	265.	280.	7	.			ES	.	0 7995	04 10 85	CRD	ES 2	0		
0 720	MW	303.	400.		.			ES	.	0 1613	22 08 85	CRD	ES 2	0		
0 825	MW	367.	.		.			ES	.		22 08 85	CRD	ES 2	0		
0 761	MW	207.	.		.			ES	.		22 08 85	CRD	ES 2	0		
01033	MW	241.	185	7	.			ES	.		04 10 85	CRD	ES 2	1		
0 768	MW	148.	.		.			ES	.		22 08 85	CRD	ES 2	0		
0 850	MW	134.	.		.			ES	.		22 08 85	CRD	ES 2	0		
0 743	MW	234.	.		.			ES	.	0 1628	22 08 85	CRD	ES 2	0		
01135	MW	249.	220	17	.			ES	.		04 10 85	CRD	ES 2	0		
0 787	MW	231.	.		.			ES	.	0 1659	22 08 85	CRD	ES 2	0		
0 806	MW	300.	360.		.			ES	.		22 08 85	CRD	ES 2	0		
0 751	MW	287.	.		.			ES	.	0 1636	22 08 85	CRD	ES 2	0		
01078	MW	283.	290.		.	4	SC	ES	.		04 10 85	CRD	ES 2	1		
0 784	MW	283.	.		.			ES	.	0 1656	22 08 85	CRD	ES 2	0		
0 843	MW	140.	.		.			ES	.		22 08 85	CRD	ES 2	0		
0 734	MW	83.	.		.	0	LF	ES	.		22 08 85	CRD	ES 2	0		
01130	MW	392	810.	17	.			ES	.	0 7994	04 10 85	CRD	ES 2	0		
0 786	MW	280.	.		.			ES	.	0 1654	22 08 85	CRD	ES 2	0		
0 819	MW	93.	.		.	0	LF	ES	.		22 08 85	CRD	ES 2	0		
0 759	MW	219.	.		.			ES	.		22 08 85	CRD	ES 2	0		
01082	MW	260.	220.		.			ES	.		04 10 85	CRD	ES 2	0		
0 788	MW	191.	.		.			ES	.		22 08 85	CRD	ES 2	0		
0 848	MW	183.	.		.			ES	.		22 08 85	CRD	ES 2	0		
0 747	MW	329.	.		.			ES	.	0 1632	22 08 85	CRD	ES 2	0		
01144	MW	113.	.		.	0	LF	ES	.		04 10 85	CRD	ES 2	0		
0 755	MW	262.	.		.			ES	.	0 1640	22 08 85	CRD	ES 2	0		
0 800	MW	394.	770.		.			ES	.	0 1670	22 08 85	CRD	ES 2	0		
0 736	MW	95.	.		.	0	LF	ES	.		22 08 85	CRD	ES 2	0		
01080	MW	300.	290.		.	4	SC	ES	.		04 10 85	CRD	ES 2	1		
0 763	MW	218.	.		.			ES	.		22 08 85	CRD	ES 2	0		
0 844	MW	272.	.		.			ES	.	1698	22 08 85	CRD	ES 2	0		
0 744	MW	327.	.		.			ES	.	0 1629	22 08 85	CRD	ES 2	0		
01132	MW	304.	340.	7	.			ES	.	0 7996	04 10 85	CRD	ES 2	0		
0 750	MW	280.	.		.			ES	.	0 1635	22 08 85	CRD	ES 2	0		
0 823	MW	318.	.		.			ES	.		22 08 85	CRD	ES 2	0		
0 746	MW	337.	.		.			ES	.	0 1631	22 08 85	CRD	ES 2	0		
01084	MW	236.	175		.			ES	.		04 10 85	CRD	ES 2	0		
0 756	MW	234.	.		.			ES	.	0 1643	22 08 85	CRD	ES 2	0		
0 803	MW	284.	305.		.			ES	.	0 1673	22 08 85	CRD	ES 2	0		
0 748	MW	320.	.		.			ES	.	0 1633	22 08 85	CRD	ES 2	0		
01134	MW	239.	180.	7	.			ES	.		04 10 85	CRD	ES 2	0		
0 754	MW	281.	.		.			ES	.	0 1639	22 08 85	CRD	ES 2	0		
0 818	MW	94.	.		.	0	LF	ES	.		22 08 85	CRD	ES 2	0		
0 762	MW	172.	.		.			ES	.		22 08 85	CRD	ES 2	0		
01136	MW	252	210.	17	.			ES	.		04 10 85	CRD	ES 2	0		
0 752	MW	274.	.		.			ES	.	0 1637	22 08 85	CRD	ES 2	0		
0 802	MW	309.	.		.			ES	.	0 1672	22 08 85	CRD	ES 2	0		
0 760	MW	220.	.		.			ES	.		22 08 85	CRD	ES 2	0		
0 826	MW	238.	.		.			ES	.		22 08 85	CRD	ES 2	0		
0 758	MW	238.	.		.			ES	.	0 1641	22 08 85	CRD	ES 2	0		
0 804	MW	313.	410.		.			ES	.	0 1674	22 08 85	CRD	ES 2	0		
0 764	MW	194.	.		.			ES	.		22 08 85	CRD	ES 2	0		
0 822	MW	308.	.		.			ES	.		22 08 85	CRD	ES 2	0		
0 824	MW	271.	.		.			ES	.		22 08 85	CRD	ES 2	0		
0 477	MW	235.	180.	5	.	2	SC	ES	.		20 08 85	CRD	ES 3	1		
01245	MW	271.	245.	8	.			ES	.		05 10 85	CRD	ES 3	0		
0 448	MW	228.	180.		.			ES	.		20 08 85	CRD	ES 3	0		
01255	MW	285.	260.	7	.			ES	.		05 10 85	CRD	ES 3	0		
0 525	MW	226.	185.		.			ES	.		20 08 85	CRD	ES 3	0		
01254	MW	303.	320.	7	.			ES	.		05 10 85	CRD	ES 3	0		
0 429	MW	284.	.		.			ES	.		20 08 85	CRD	ES 3	0		
01257	MW	266.	260.	7	.			ES	.		05 10 85	CRD	ES 3	0		
0 489	MW	248.	.		.	3	SC	ES	.	0 1610	20 08 85	CRD	ES 3	0		
01213	MW	301.	325.	7	.			ES	.		05 10 85	CRD	ES 3	0		
0 481	MW	195.	100.		.			ES	.		20 08 85	CRD	ES 3	0		
01253	MW	308.	300.	7	.			ES	.		05 10 85	CRD	ES 3	0		

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                                     RL&L ENVIRONMENTAL SERVICES LTD.
                             FISHERIES DATA - PRINT OUT BY SPECIES AND LOCATION
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SAMPLE SP.  LENGTH    WEIGHT  SEX- GONAD AGE AGE  CAPT MESH    TAG       DATE     LOCATION  SITE CAPT PRES      COMMENTS
   NO.       (MM)       (G)   MAT. WT(G)     METH METH (CM)    NO.   DAY MO YR                   CODE CODE
------------------------------------------------------------------------------------------------------------------------
0 518 MW    312.      350.           .            ES    .   0 1523   20 08 85   CRO    ES 3  0
01258 MW    305.      340.    7      .            ES    .            05 10 85   CRO    ES 3  0
0 421 MW    250.         .           .            ES    .            20 08 85   CRO    ES 3  0
01247 MW    303.      370.    7      .            ES    .            05 10 85   CRO    ES 3  0
0 488 MW    424.      810.           .    9  SC   ES    .   0 1501   20 08 85   CRO    ES 3  0
01209 MW    264.      240.    7      .            ES    .            05 10 85   CRO    ES 3  0
0 453 MW    335.      490.           .    5  SC   ES    .            20 08 85   CRO    ES 3  0
01246 MW    304.      390.   17      .            ES    .            05 10 85   CRO    ES 3  0
0 529 MW    250.      220.           .            ES    .   0 1533   20 08 85   CRO    ES 3  0
01229 MW    165.       50.   99      .            ES    .            05 10 85   CRO    ES 3  0
0 437 MW    210.         .           .            ES    .            20 08 85   CRO    ES 3  0
01248 MW    366.      600.   17      .            ES    .            05 10 85   CRO    ES 3  0
0 501 MW    272.      290.           .       SC   ES    .   0 1512   20 08 85   CRO    ES 3  0
01207 MW    307.      330.   17      .            ES    .            05 10 85   CRO    ES 3  0
0 473 MW    238.      180.    6      .    2  SC   ES    .            20 08 85   CRO    ES 3  1
01222 MW    283.      305.   17      .            ES    .            05 10 85   CRO    ES 3  0
0 509 MW    294.      315.           .    3  SC   ES    .   0 1518   20 08 85   CRO    ES 3  0
01211 MW    278.      255.    7      .            ES    .            05 10 85   CRO    ES 3  0
0 425 MW    238.         .           .            ES    .            20 08 85   CRO    ES 3  0
01241 MW    355.      680.   17      .            ES    .            05 10 85   CRO    ES 3  0
0 479 MW    347.      720.           .    6  SC   ES    .            20 08 85   CRO    ES 3  0
01208 MW    270.      230.           .            ES    .            05 10 85   CRO    ES 3  0
0 449 MW    214.      130.           .            ES    .            20 08 85   CRO    ES 3  0
01220 MW    402.      980.    7      .            ES    .   0 7943   05 10 85   CRO    ES 3  0
0 527 MW    263.      240.           .            ES    .   0 1531   20 08 85   CRO    ES 3  0
01210 MW    331.      460.   17      .            ES    .            05 10 85   CRO    ES 3  0
0 433 MW    277.         .           .            ES    .            20 08 85   CRO    ES 3  0
01233 MW    301.      305.           .            ES    .            05 10 85   CRO    ES 3  1
0 500 MW    278.      300.           .       SC   ES    .   0 1511   20 08 85   CRO    ES 3  0
01212 MW    323.      415.    7      .            ES    .            05 10 85   CRO    ES 3  0
0 465 MW    264.      240.   16      .    3  SC   ES    .            20 08 85   CRO    ES 3  1
01225 MW    276.       290   17      .            ES    .            05 10 85   CRO    ES 3  0
0 521 MW    314.      380.           .            ES    .   0 1527   20 08 85   CRO    ES 3  0
01237 MW    308.      375.    7      .            ES    .            05 10 85   CRO    ES 3  0
0 423 MW    284.         .           .            ES    .            20 08 85   CRO    ES 3  0
01215 MW    322        395    7      .            ES    .            05 10 85   CRO    ES 3  1
0 478 MW    214.      145.    6      .    2  SC   ES    .            20 08 85   CRO    ES 3  1
01231 MW    160.       60.   99      .            ES    .            05 10 85   CRO    ES 3  1
0 457 MW    247       230.           .            ES    .            20 08 85   CRO    ES 3  0
01223 MW    296.       340   17      .            ES    .            05 10 85   CRO    ES 3  0
0 526 MW    318.       350           .            ES    .   0 1530   20 08 85   CRO    ES 3  0
01243 MW    380.         .   17      .            ES    .            05 10 85   CRO    ES 3  0
0 441 MW    221.         .           .            ES    .            20 08 85   CRO    ES 3  0
01214 MW    280.      280.           .            ES    .            05 10 85   CRO    ES 3  0
0 505 MW    218.      170.    6      .            ES    .            20 08 85   CRO    ES 3  1
01235 MW    311.      400.    7      .            ES    .            05 10 85   CRO    ES 3  0
0 475 MW    217.      130.   11      .    2  SC   ES    .            20 08 85   CRO    ES 3  1
01227 MW    234.      175.   17      .            ES    .            05 10 85   CRO    ES 3  0
0 512 MW    318.      360.           .    5  SC   ES    .   0 1521   20 08 85   CRO    ES 3  0
01240 MW    315.      315.           .            ES    .            05 10 85   CRO    ES 3  0
0 427 MW    220.         .           .            ES    .            20 08 85   CRO    ES 3  0
01224 MW    233.      180.    8      .            ES    .            05 10 85   CRO    ES 3  0
0 480 MW    333.      540.           .    5  SC   ES    .            20 08 85   CRO    ES 3  0
01230 MW    202.      115.   99      .            ES    .            05 10 85   CRO    ES 3  0
0 451 MW    207.      115.           .            ES    .            20 08 85   CRO    ES 3  0
01226 MW    226.      160.   17      .            ES    .            05 10 85   CRO    ES 3  0
0 528 MW    255.      260.           .            ES    .   0 1532   20 08 85   CRO    ES 3  0
01242 MW    332.      480.    7      .            ES    .            05 10 85   CRO    ES 3  0
0 431 MW    207.         .           .            ES    .            20 08 85   CRO    ES 3  0
01228 MW    228.      150.    7      .            ES    .            05 10 85   CRO    ES 3  0
0 503 MW    215.      145.           .            ES    .   0 5114   20 08 85   CRO    ES 3  2
01234 MW    349.      480.   17      .            ES    .            05 10 85   CRO    ES 3  0
0 484 MW    248.      180.    8      .    3  SC   ES    .            20 08 85   CRO    ES 3  1
01238 MW    274.      238.   17      .            ES    .            05 10 85   CRO    ES 3  0
0 519 MW    231.      190.           .            ES    .   0 1524   20 08 85   CRO    ES 3  0
01232 MW    327.      340.           .            ES    .            05 10 85   CRO    ES 3  0
0 422 MW    222.         .           .            ES    .            20 08 85   CRO    ES 3  0
01244 MW    322.      455.    7      .            ES    .            05 10 85   CRO    ES 3  0
0 507 MW    328.      410.           .    5  SC   ES    .   0 1516   20 08 85   CRO    ES 3  0
01236 MW    316.      415.   17      .            ES    .            05 10 85   CRO    ES 3  0
0 455 MW    292.      300.           .            ES    .            20 08 85   CRO    ES 3  0
0 523 MW    316.      420.           .            ES    .   0 1528   20 08 85   CRO    ES 3  0
0 439 MW    265.         .           .            ES    .            20 08 85   CRO    ES 3  0
0 502 MW    247.       190           .       SC   ES    .   0 1513   20 08 85   CRO    ES 3  0
0 474 MW    181.       80.    1      .    2  SC   ES    .            20 08 85   CRO    ES 3  1
0 520 MW    256.      220.           .            ES    .   0 1525   20 08 85   CRO    ES 3  0
0 426 MW    204.         .           .            ES    .            20 08 85   CRO    ES 3  0
0 506 MW    324.       450           .    5  SC   ES    .   0 1515   20 08 85   CRO    ES 3  0
0 450 MW    227.      160.           .            ES    .            20 08 85   CRO    ES 3  0
0 522 MW    285.      315.           .            ES    .   0 1526   20 08 85   CRO    ES 3  0
0 435 MW    225.         .           .            ES    .            20 08 85   CRO    ES 3  0
0 504 MW    244.       200           .       SC   ES    .   0 1514   20 08 85   CRO    ES 3  0
0 467 MW    224.      150.           .            ES    .            20 08 85   CRO    ES 3  0
0 524 MW    300.      320.           .            ES    .   0 1529   20 08 85   CRO    ES 3  0
0 424 MW    234.         .           .            ES    .            20 08 85   CRO    ES 3  0
0 508 MW    305.       360           .            ES    .   0 1517   20 08 85   CRO    ES 3  0
0 459 MW    188.       80.           .            ES    .            20 08 85   CRO    ES 3  0
0 438 MW    221.         .           .            ES    .            20 08 85   CRO    ES 3  0
0 476 MW    283.      260.    6      .    3  SC   ES    .            20 08 85   CRO    ES 3  1
0 428 MW    235.         .           .            ES    .            20 08 85   CRO    ES 3  0
0 452 MW    278.      250.           .            ES    .            20 08 85   CRO    ES 3  0
0 430 MW    233.         .           .            ES    .            20 08 85   CRO    ES 3  0
0 462 MW    220.      130.           .            ES    .            20 08 85   CRO    ES 3  0
0 440 MW    200.         .           .            ES    .            20 08 85   CRO    ES 3  0
0 454 MW    248.      210.           .            ES    .            20 08 85   CRO    ES 3  0
0 434 MW    284.         .           .            ES    .            20 08 85   CRO    ES 3  0
0 466 MW    314.      440.           .    5  SC   ES    .            20 08 85   CRO    ES 3  0
0 432 MW    233.         .           .            ES    .            20 08 85   CRO    ES 3  0
0 456 MW    276.      240.           .            ES    .            20 08 85   CRO    ES 3  0
0 436 MW    231.         .           .            ES    .            20 08 85   CRO    ES 3  0
0 458 MW    313.      390.           .    4  SC   ES    .            20 08 85   CRO    ES 3  0
0 460 MW    271.      235.           .            ES    .            20 08 85   CRO    ES 3  0
01285 MW    429.         .   17      .            ES    .   0 7671   05 10 85   CRO    ES 3A 0
01288 MW    435      1230.           .            ES    .   0 7874   05 10 85   CRO    ES 3A 0
01282 MW    371.      675.    8      .            ES    .   0 7868   05 10 85   CRO    ES 3A 0
0 133 MW    183.         .           .            ES    .            18 08 85   OLD    ES 1  0
01413 MW    251.         .    8      .    3  SC   ES    .   0 1751   19 10 85   OLD    ES 1  0
0 157 MW    152.       60.           .    1  SC   ES    .            18 08 85   OLD    ES 1  0
01403 MW    322.         .    8      .    5  SC   ES    .   0 8894   19 10 85   OLD    ES 1  0              ES1
01414 MW    278.         .    8      .       SC   ES    .   0 1752   19 10 85   OLD    ES 1  0
01405 MW    300.         .    8      .    4  SC   ES    .   0 8896   19 10 85   OLD    ES 1  0
0 221 MW    157.       30.           .            ES    .            18 08 85   OLD    ES 1  0
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RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY SPECIES AND LOCATION

SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY	MO	YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
01407	MW	265.	.	8	.	3	SC	ES	.	0 8887	19	10	85	OLD	ES 1	0		
01404	MW	311.	.	8	.	5	SC	ES	.	0 8895	19	10	85	OLD	ES 1	0		
01409	MW	262.	.	8	.	3	SC	ES	.	0 8899	19	10	85	OLD	ES 1	0		
0 218	MW	248.	.		.			ES	.		18	08	85	OLD	ES 1	0		
01411	MW	295.	.	9	.	4	SC	ES	.		19	10	85	OLD	ES 1	1		STMT
01448	MW	273.	235.	8	.		SC	ES	.	0 1769	19	10	85	OLD	ES 1	0		
01415	MW	219.	.	99	.	2	SC	ES	.		19	10	85	OLD	ES 1	0		
0 225	MW	153.	.		.			ES	.		18	08	85	OLD	ES 1	0		
0 156	MW	204.	100.		.	2	SC	ES	.		18	08	85	OLD	ES 1	0		
0 173	MW	171.	.		.			ES	.		18	08	85	OLD	ES 1	0		
01429	MW	153.	.	99	.			ES	.		19	10	85	OLD	ES 1	0		
0 223	MW	128.	.		.			ES	.		18	08	85	OLD	ES 1	0		
01430	MW	380.	.	8	.	6	SC	ES	.	0 1571	19	10	85	OLD	ES 1	0		
0 189	MW	210.	140.		.			ES	.		18	08	85	OLD	ES 1	0		
01410	MW	272.	.	8	.		SC	ES	.	0 8900	19	10	85	OLD	ES 1	0		
0 226	MW	165.	.		.			ES	.		18	08	85	OLD	ES 1	0		
0 138	MW	357.	580.		.	7	SC	ES	.	0 1383	18	08	85	OLD	ES 1	0		
0 166	MW	88.	.		.	0	LF	ES	.		18	08	85	OLD	ES 1	0		
01447	MW	286.	220.	19	.		SC	ES	.	0 1768	19	10	85	OLD	ES 1	0		
0 222	MW	155.	.		.			ES	.		18	08	85	OLD	ES 1	0		
01428	MW	152.	.	99	.	1	SC	ES	.		19	10	85	OLD	ES 1	0		
0 219	MW	211.	120.		.			ES	.		18	08	85	OLD	ES 1	0		
01444	MW	278.	245.	19	.		SC	ES	.	0 1765	19	10	85	OLD	ES 1	0		
0 224	MW	134.	.		.			ES	.		18	08	85	OLD	ES 1	0		
0 135	MW	141.	.		.			ES	.		18	08	85	OLD	ES 1	0		
0 176	MW	327.	400.		.	8	SC	ES	.	0 1391	18	08	85	OLD	ES 1	0		
01445	MW	287.	275.	19	.		SC	ES	.	0 1766	19	10	85	OLD	ES 1	0		
0 198	MW	138.	30.		.			ES	.		18	08	85	OLD	ES 1	0		
01408	MW	291.	.	8	.	4	SC	ES	.	0 8894	19	10	85	OLD	ES 1	0		
0 161	MW	158	40.		.			ES	.		18	08	85	OLD	ES 1	0		
01423	MW	283	.	8	.	3	SC	ES	.	0 1758	19	10	85	OLD	ES 1	0		
0 220	MW	182.	60.		.			ES	.		18	08	85	OLD	ES 1	0		
0 134	MW	146.	.		.			ES	.		18	08	85	OLD	ES 1	0		
0 174	MW	83.	.		.	0	LF	ES	.		18	08	85	OLD	ES 1	0		
01433	MW	349.	.	18	.	5	SC	ES	.	0 1755	19	10	85	OLD	ES 1	0		
0 153	MW	144.	20.		.			ES	.		18	08	85	OLD	ES 1	0		
01424	MW	274	.	8	.	3	SC	ES	.	0 1759	19	10	85	OLD	ES 1	0		
0 172	MW	152.	.		.			ES	.		18	08	85	OLD	ES 1	0		
01456	MW	257	205	8	.			ES	.		19	10	85	OLD	ES 1	0		
0 191	MW	209	110.		.			ES	.		18	08	85	OLD	ES 1	0		
0 136	MW	185.	.		.			ES	.		18	08	85	OLD	ES 1	0		
0 159	MW	188.	75.		.			ES	.		18	08	85	OLD	ES 1	0		
01406	MW	294.	.	8	.	4	SC	ES	.		19	10	85	OLD	ES 1	0		
0 195	MW	180.	60.		.			ES	.		18	08	85	OLD	ES 1	0		
01426	MW	243.	.	8	.		SC	ES	.		19	10	85	OLD	ES 1	0		
0 188	MW	300.	410.		.	5	SC	ES	.	0 1389	18	08	85	OLD	ES 1	0		
01431	MW	314.	.	8	.	5	SC	ES	.	0 1753	19	10	85	OLD	ES 1	0		
0 190	MW	172.	40.		.			ES	.		18	08	85	OLD	ES 1	0		
01432	MW	362.	.	8	.			ES	.	0 1754	19	10	85	OLD	ES 1	0		
0 183	MW	132.	25.		.			ES	.		18	08	85	OLD	ES 1	0		
01455	MW	233.	145.	8	.			ES	.		19	10	85	OLD	ES 1	0		
0 194	MW	141.	20.		.			ES	.		18	08	85	OLD	ES 1	0		
01422	MW	296.	.	8	.		SC	ES	.	0 1757	19	10	85	OLD	ES 1	0		
0 158	MW	145.	30.		.			ES	.		18	08	85	OLD	ES 1	0		
01452	MW	263.	.	8	.			ES	.	0 1773	19	10	85	OLD	ES 1	0		
0 192	MW	143.	20.		.			ES	.		18	08	85	OLD	ES 1	0		
01461	MW	204.	95.	99	.			ES	.		19	10	85	OLD	ES 1	0		
0 162	MW	138.	25.		.			ES	.		18	08	85	OLD	ES 1	0		
01454	MW	250.	.	19	.			ES	.	0 1775	19	10	85	OLD	ES 1	0		
0 196	MW	197.	80.		.			ES	.		18	08	85	OLD	ES 1	0		
01443	MW	280.	270.	19	.		SC	ES	.	0 1764	19	10	85	OLD	ES 1	0		
0 180	MW	157.	35.		.			ES	.		18	08	85	OLD	ES 1	0		
01427	MW	180.	.	99	.	1	SC	ES	.		19	10	85	OLD	ES 1	0		
0 164	MW	150.	35.		.			ES	.		18	08	85	OLD	ES 1	0		
01449	MW	278.	240.	8	.		SC	ES	.	0 1770	19	10	85	OLD	ES 1	0		
01442	MW	284.	240.	8	.	4	SC	ES	.	0 1763	19	10	85	OLD	ES 1	0		
01425	MW	272.	.	8	.	4	SC	ES	.		19	10	85	OLD	ES 1	0		
01440	MW	333.	.		.			ES	.	0 1762	19	10	85	OLD	ES 1	0		
01453	MW	250.	180.		.			ES	.	0 1774	19	10	85	OLD	ES 1	0		
01446	MW	263.	215.	19	.		SC	ES	.	0 1767	19	10	85	OLD	ES 1	0		
01451	MW	298.	280.	19	.	4	SC	ES	.	0 1772	19	10	85	OLD	ES 1	0		
01460	MW	180.	.	99	.			ES	.		19	10	85	OLD	ES 1	0		
01441	MW	298.	305.	19	.		SC	ES	.		19	10	85	OLD	ES 1	1		
01450	MW	288.	270.	8	.	4	SC	ES	.	0 1771	19	10	85	OLD	ES 1	0		
01459	MW	220.	120.	99	.			ES	.		19	10	85	OLD	ES 1	0		
01458	MW	218.	100.	99	.			ES	.		19	10	85	OLD	ES 1	0		
01457	MW	257.	200.	8	.			ES	.		19	10	85	OLD	ES 1	0		
0 542	MW	175.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 533	MW	237.	.		.			ES	.	0 1537	21	08	85	OLD	ES 2	0		
0 882	MW	311.	330.		.			ES	.	0 1591	21	08	85	OLD	ES 2	0		
0 532	MW	287.	.		.			ES	.	0 1536	21	08	85	OLD	ES 2	0		
0 605	MW	267.	250.		.			ES	.	0 1569	21	08	85	OLD	ES 2	0		
0 537	MW	194.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 685	MW	352.	550.		.			ES	.	0 1593	21	08	85	OLD	ES 2	0		
0 530	MW	280.	.		.			ES	.	0 1534	21	08	85	OLD	ES 2	0		
0 573	MW	286.	.		.			ES	.	0 1554	21	08	85	OLD	ES 2	0		
0 535	MW	276.	.		.			ES	.	0 1539	21	08	85	OLD	ES 2	0		
0 684	MW	411.	700.		.			ES	.	0 1592	21	08	85	OLD	ES 2	0		
0 539	MW	221.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 653	MW	320.	380.		.			ES	.	0 1580	21	08	85	OLD	ES 2	0		
0 534	MW	286.	.		.			ES	.	0 1538	21	08	85	OLD	ES 2	0		
0 693	MW	280.	210.		.			ES	.		21	08	85	OLD	ES 2	0		
0 538	MW	180.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 557	MW	192.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 536	MW	280.	.		.			ES	.	0 1540	21	08	85	OLD	ES 2	0		
0 689	MW	262.	210.		.			ES	.	0 1597	21	08	85	OLD	ES 2	0		
0 621	MW	145.	40.		.			ES	.		21	08	85	OLD	ES 2	0		
0 697	MW	167.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 581	MW	188.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 637	MW	277.	270.		.			ES	.	0 1595	21	08	85	OLD	ES 2	0		
0 861	MW	130.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 895	MW	128.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 549	MW	288.	.		.			ES	.	0 1544	21	08	85	OLD	ES 2	0		
0 891	MW	150.	30.		.			ES	.		21	08	85	OLD	ES 2	0		
0 813	MW	271.	220.		.			ES	.	0 1577	21	08	85	OLD	ES 2	0		
0 894	MW	138.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 577	MW	230.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 886	MW	318.	420.		.			ES	.	0 1594	21	08	85	OLD	ES 2	0		
0 657	MW	278.	250.		.			ES	.	0 1584	21	08	85	OLD	ES 2	0		
0 698	MW	139.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 568	MW	237.	.		.			ES	.	0 1549	21	08	85	OLD	ES 2	0		
0 880	MW	187.	70.		.			ES	.		21	08	85	OLD	ES 2	0		

RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY SPECIES AND LOCATION
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SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY	MO	YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
0 629	MW	214.	130.	6	.			ES	.		21	08	85	OLD	ES 2	1		
0 658	MW	259.	210.		.			ES	.	0 1598	21	08	85	OLD	ES 2	0		
0 583	MW	80.	.	55	.	0	LF	ES	.		21	08	85	OLD	ES 2	0		
0 632	MW	213.	110.		.			ES	.		21	08	85	OLD	ES 2	0		
0 663	MW	248.	185.	16	.			ES	.		21	08	85	OLD	ES 2	1		
0 546	MW	284.	.		.			ES	.	0 1541	21	08	85	OLD	ES 2	0		
0 609	MW	321.	390.		.			ES	.	0 1573	21	08	85	OLD	ES 2	0		
0 575	MW	276.	.		.			ES	.	0 1556	21	08	85	OLD	ES 2	0		
0 655	MW	270.	270.		.			ES	.	0 1582	21	08	85	OLD	ES 2	0		
0 561	MW	141.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 625	MW	242.	210.	6	.			ES	.		21	08	85	OLD	ES 2	1		
0 582	MW	251.	.	16	.			ES	.		21	08	85	OLD	ES 2	1		
0 662	MW	141.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 553	MW	138.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 617	MW	259.	220.		.			ES	.		21	08	85	OLD	ES 2	0		
0 579	MW	225.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 659	MW	141.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 585	MW	311.	.		.			ES	.	0 1550	21	08	85	OLD	ES 2	0		
0 633	MW	147.	40.		.			ES	.		21	08	85	OLD	ES 2	0		
0 574	MW	284.	.		.			ES	.	0 1555	21	08	85	OLD	ES 2	0		
0 654	MW	283.	240.		.			ES	.	0 1581	21	08	85	OLD	ES 2	0		
0 543	MW	83.	.		.	0	LF	ES	.		21	08	85	OLD	ES 2	0		
0 607	MW	380.	500.		.			ES	.	0 1571	21	08	85	OLD	ES 2	0		
0 578	MW	251.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 658	MW	284.	225.		.			ES	.	0 1585	21	08	85	OLD	ES 2	0		
0 559	MW	131.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 623	MW	148.	40.		.			ES	.		21	08	85	OLD	ES 2	0		
0 576	MW	233.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 656	MW	289.	280		.			ES	.	0 1583	21	08	85	OLD	ES 2	0		
0 551	MW	251.	.		.			ES	.	0 1546	21	08	85	OLD	ES 2	0		
0 615	MW	235.	155.		.			ES	.		21	08	85	OLD	ES 2	0		
0 580	MW	226.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 660	MW	187.			.			ES	.		21	08	85	OLD	ES 2	0		
0 571	MW	258.	.		.			ES	.	0 1552	21	08	85	OLD	ES 2	0		
0 631	MW	180.	70		.			ES	.		21	08	85	OLD	ES 2	0		
0 547	MW	290.	.		.			ES	.	0 1542	21	08	85	OLD	ES 2	0		
0 611	MW	259.	215.		.			ES	.	0 1575	21	08	85	OLD	ES 2	0		
0 552	MW	186.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 627	MW	250.	220	6	.			ES	.		21	08	85	OLD	ES 2	1		
0 555	MW	191.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 619	MW	208.	115.		.			ES	.		21	08	85	OLD	ES 2	0		
0 570	MW	343.	.		.			ES	.	0 1551	21	08	85	OLD	ES 2	0		
0 635	MW	140.	25.		.			ES	.		21	08	85	OLD	ES 2	0		
0 548	MW	285.	.		.			ES	.	0 1543	21	08	85	OLD	ES 2	0		
0 606	MW	304.	305.		.			ES	.	0 1570	21	08	85	OLD	ES 2	0		
0 558	MW	133.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 622	MW	157.	40.		.			ES	.		21	08	85	OLD	ES 2	0		
0 550	MW	292.	.		.			ES	.	0 1545	21	08	85	OLD	ES 2	0		
0 614	MW	267.	250.		.			ES	.		21	08	85	OLD	ES 2	0		
0 572	MW	273.	.		.			ES	.	0 1553	21	08	85	OLD	ES 2	0		
0 630	MW	198.	110.		.			ES	.		21	08	85	OLD	ES 2	0		
0 554	MW	135.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 610	MW	296.	380.		.			ES	.	0 1574	21	08	85	OLD	ES 2	0		
0 560	MW	134.	.		.			ES	.		21	08	85	OLD	ES 2	0		
0 626	MW	286.	330.	16	.			ES	.		21	08	85	OLD	ES 2	1		
0 552	MW	238.	.		.			ES	.	0 1547	21	08	85	OLD	ES 2	0		
0 618	MW	253.	225		.			ES	.		21	08	85	OLD	ES 2	0		
0 634	MW	134.	20.		.			ES	.		21	08	85	OLD	ES 2	0		
0 608	MW	302.	315.		.			ES	.	0 1572	21	08	85	OLD	ES 2	0		
0 624	MW	184.	95.		.			ES	.		21	08	85	OLD	ES 2	0		
0 616	MW	268.	235.		.			ES	.		21	08	85	OLD	ES 2	0		
0 632	MW	220.	130.		.			ES	.		21	08	85	OLD	ES 2	0		
0 612	MW	313.	380.		.			ES	.	0 1578	21	08	85	OLD	ES 2	0		
0 628	MW	227.	150.	6	.			ES	.		21	08	85	OLD	ES 2	1		
0 620	MW	230.	180.		.			ES	.		21	08	85	OLD	ES 2	0		
01066	MW	275.	280.	17	.	3	SC	ES	.	0 7951	03	10	85	OLD	OMP1	0		RUN # 1
01067	MW	397.	620.	7	.	6	SC	ES	.	0 7952	03	10	85	OLD	OMP1	0		RUN # 2
01068	MW	285.	290.	19	.	4	SC	ES	.		03	10	85	OLD	OMP1	1		
01019	RT	128.	.		.			ES	.		24	09	85	CAS	CAP1	0		
0 378	RT	187.	.		.			ES	.		22	09	85	CAS	CAP1	0		
01021	RT	218.	.		.			ES	.	0 1738	24	09	85	CAS	CAP1	0		
0 380	RT	189.	.		.			ES	.		22	09	85	CAS	CAP1	0		
01018	RT	211.	.		.			ES	.		24	09	85	CAS	CAP1	0		
01029	RT	142.	.		.			ES	.		26	09	85	CAS	CAP1	0		
01020	RT	285.	.		.			ES	.	0 1735	24	09	85	CAS	CAP1	0		
01025	RT	98.	.		.			ES	.		26	09	85	CAS	CAP1	0		
01033	RT	140.	.		.			ES	.		26	09	85	CAS	CAP1	0		
01023	RT	189.	.		.			ES	.		24	09	85	CAS	CAP1	0		
01031	RT	139.	.		.			ES	.		26	09	85	CAS	CAP1	0		
01027	RT	131.	.		.			ES	.		26	09	85	CAS	CAP1	0		
01034	RT	136.	.		.			ES	.		26	09	85	CAS	CAP1	0		
01022	RT	181.	.		.			ES	.		24	09	85	CAS	CAP1	0		
01030	RT	126.	.		.			ES	.		28	09	85	CAS	CAP1	0		
01026	RT	120.	.		.			ES	.		28	09	85	CAS	CAP1	0		
01032	RT	138.	.		.			ES	.		26	09	85	CAS	CAP1	0		
01024	RT	147.	.		.			ES	.		26	09	85	CAS	CAP1	0		
01028	RT	97.	.		.			ES	.		26	09	85	CAS	CAP1	0		
01321	RT	315.	400.		.	3	SC	ES	.	0 7881	10	10	85	CAS	ES 1	0		
01345	RT	163.	55.		.	2	SC	ES	.		10	10	85	CAS	ES 1	0		
01343	RT	211.	110.		.	2	SC	ES	.	0 7897	10	10	85	CAS	ES 1	0		
0 61	RT	214.	.		.	2	SC	ES	.		17	08	85	CAS	ES 1	0		
01351	RT	145.	45.		.	1	SC	ES	.		10	10	85	CAS	ES 1	0		
0 101	RT	222.	.		.	2	SC	ES	.	0 1371	17	08	85	CAS	ES 1	0		
01341	RT	286.	215.		.	3	SC	ES	.	0 7896	10	10	85	CAS	ES 1	0		
0 54	RT	120.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 1	RT	211.	.	98	.	2	SC	ES	.		17	08	85	CAS	ES 1	0		
0 121	RT	121.	.		.	1	SC	ES	.		17	08	85	CAS	ES 1	0		
01344	RT	221.	125.		.		SC	ES	.	0 7898	10	10	85	CAS	ES 1	0		
0 67	RT	203.	.		.	2	SC	ES	.		17	08	85	CAS	ES 1	0		
01342	RT	183.	60.		.	2	SC	ES	.		10	10	85	CAS	ES 1	0		
0 100	RT	220.	.		.	2	SC	ES	.		17	08	85	CAS	ES 1	0		
01348	RT	149.	35.		.	2	SC	ES	.		10	10	85	CAS	ES 1	0		
0 29	RT	281.	.		.	3	SC	ES	.	0 1357	17	08	85	CAS	ES 1	0		
01336	RT	232.	180.		.	2	SC	ES	.	0 7883	10	10	85	CAS	ES 1	0		
0 103	RT	223.	.		.	2	SC	ES	.	0 1376	17	08	85	CAS	ES 1	0		
0 7	RT	285.	.		.	3	SC	ES	.	0 1351	17	08	85	CAS	ES 1	0		
01337	RT	161.	45.		.	1	SC	ES	.		10	10	85	CAS	ES 1	0		
0 22	RT	671.	.	97	.		SC	ES	.	0 1353	17	08	85	CAS	ES 1	0		EST. @ 5-6 lbs
0 102	RT	215.	.		.		SC	ES	.		17	08	85	CAS	ES 1	0		
01340	RT	344.	520.		.	3	SC	ES	.	0 7895	10	10	85	CAS	ES 1	0		
0 59	RT	218.	.		.	2	SC	ES	.		17	08	85	CAS	ES 1	0		
01338	RT	172.	70.		.	2	SC	ES	.		10	10	85	CAS	ES 1	0		

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                              RL&L ENVIRONMENTAL SERVICES LTD.
                       FISHER;ES DATA - PRINT OUT BY SPECIES AND LOCATION
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SAMPLE SP.   LENGTH    WEIGHT  SEX-  GONAD AGE AGE  CAPT MESH     TAG       DATE    LOCATION  SITE CAPT PRES        COMMENTS
   NO.        (MM)      (G)    MAT.  WT(G)     METH METH (CM)     NO.    DAY MO YR                 CODE CODE
.............................................................................................................................
0 104 RT      230.         .            .    2  SC    ES     .   0 1382   17 08 85   CAS      ES 1    0
0   2 RT      115.         .   98       .    1  SC    ES     .            17 08 85   CAS      ES 1    0
0  39 RT      218.         .   98       .    2  SC    ES     .            17 08 85   CAS      ES 1    0
01347 RT      128.         .            .    1  SC    ES     .            10 10 85   CAS      ES 1    0
01335 RT      223.      140.            .    2  SC    ES     .   0 7892   10 10 85   CAS      ES 1    0
01307 RT      118.       18.   99       .    1  SD    ES     .            06 10 85   CAS      ES 2    1
01311 RT      200.       92.   11       .    2  SD    ES     .            06 10 85   CAS      ES 2    1      ST-3/4 FULL CORIX
01309 RT      126.       22.   99       .    1  SD    ES     .            06 10 85   CAS      ES 2    1
01310 RT      135.       28.   99       .    1  SD    ES     .            06 10 85   CAS      ES 2    1
01312 RT      204.       98.    1       .    2  SD    ES     .            06 10 85   CAS      ES 2    1      ST-1/4 FULL CORIX
01313 RT      186.       65.    1       .       SD    ES     .            06 10 85   CAS      ES 2    1      ST-1/2 FULL CORIX
01308 RT      139.       28.   99       .    1  SD    ES     .            06 10 85   CAS      ES 2    1
01315 RT      237.      156.   11       .    2  SD    ES     .            06 10 85   CAS      ES 2    1      ST-3/4 FULL CORIX
01314 RT      247.      194.   11       .    2  SD    ES     .            06 10 85   CAS      ES 2    1      ST-FULL CORIX
01049 RT      382.         .            .             ES     .   0 1741   02 10 85   CRO      CNP1    0
01061 RT       72.         .            .    0  LF    ES     .            02 10 85   CRO      CNP1    0
01039 RT      445.         .            .             ES     .   0 1446   02 10 85   CRO      CNP1    2
01051 RT      313.      410.            .    2  SC    ES     .   0 1743   02 10 85   CRO      CNP1    0
01041 RT      210.         .            .    2  SC    ES     .            02 10 85   CRO      CNP1    0
01050 RT      368.      850.            .    2  SC    ES     .   0 1742   02 10 85   CRO      CNP1    0
01040 RT      239.         .            .    1  SC    ES     .   0 1739   02 10 85   CRO      CNP1    0
01035 RT      390.      730.            .    3  SC    ES     .   0 1737   02 10 85   CRO      CNP2    0
01037 RT       75.         .            .    0  LF    ES     .            02 10 85   CRO      CNP2    0
01038 RT      408.      970.            .    3  SC    ES     .   0 1736   02 10 85   CRO      CNP2    0
01469 RT         .         .            .             ES     .   0 1408   24 09 85   CRO      CNP3    2
01354 RT      369.         .            .    3  SC    ES     .   0 7900   17 10 85   CRO      CNP3    0
01353 RT      419.         .            .             ES     .   0 7899   17 10 85   CRO      CNP3    0
01401 RT      419.         .            .    3  SC    ES     .   0 8891   17 10 85   CRO      CNP3    0
01364 RT      371.         .            .             ES     .   0 8877   17 10 85   CRO      CNP3    0
0 909 RT      414.         .            .             ES     .   0 1406   20 09 85   CRO      CNP3    0
01467 RT         .         .            .             ES     .   0 1422   24 09 85   CRO      CNP3    2
01365 RT      389.      780.            .    3  SD    ES     .            17 10 85   CRO      CNP3    1
01384 RT      328.         .            .             ES     .   0 8889   17 10 85   CRO      CNP3    0
0 941 RT      234.         .            .             ES     .   0 1435   21 09 85   CRO      CNP3    0
01374 RT      305.         .            .             ES     .   0 8886   17 10 85   CRO      CNP3    0
01369 RT      403.         .            .             ES     .   0 8881   17 10 85   CRO      CNP3    0
01360 RT      531.         .            .             ES     .   0 8776   17 10 85   CRO      CNP3    0
0 857 RT      230.         .            .             ES     .            20 09 85   CRO      CNP3    0
01370 RT      322.         .            .             ES     .   0 8882   17 10 85   CRO      CNP3    0
01373 RT      347.         .            .             ES     .   0 8885   17 10 85   CRO      CNP3    0
01368 RT      461.         .            .             ES     .   0 1713   17 10 85   CRO      CNP3    2
0 997 RT      238.         .            .             ES     .   0 1719   24 09 85   CRO      CNP3    0
01366 RT      437.         .            .             ES     .   0 8879   17 10 85   CRO      CNP3    0
0 881 RT      155.         .            .             ES     .            20 09 85   CRO      CNP3    0
01372 RT      387.         .            .             ES     .   0 8884   17 10 85   CRO      CNP3    0
0 957 RT      345.         .            .             ES     .            21 09 85   CRO      CNP3    0
01468 RT         .         .            .             ES     .   0 1438   24 09 85   CRO      CNP3    2
01470 RT         .         .            .             ES     .   0 1417   24 09 85   CRO      CNP3    2
01382 RT      312.         .            .             ES     .   0 8887   17 10 85   CRO      CNP3    0
01363 RT      419.         .            .             ES     .   0 7976   17 10 85   CRO      CNP3    2
0 895 RT      235.         .            .             ES     .            20 09 85   CRO      CNP3    0
0 927 RT      389.         .            .             ES     .   0 1422   21 09 85   CRO      CNP3    0
0 853 RT      248.         .            .             ES     .   Y 4420   20 09 85   CRO      CNP3    0      START RUN # 3
01005 RT      409.         .            .             ES     .   0 1723   24 09 85   CRO      CNP3    0
0 877 RT      281.         .            .             ES     .            20 09 85   CRO      CNP3    0
0 973 RT      221.         .            .             ES     .            21 09 85   CRO      CNP3    0
0 852 RT      310.         .            .             ES     .   Y 4419   20 09 85   CRO      CNP3    0
0 993 RT      155.         .            .             ES     .            24 09 85   CRO      CNP3    0
0 917 RT      209.         .            .             ES     .            20 09 85   CRO      CNP3    0
0 955 RT      218.         .            .             ES     .            21 09 85   CRO      CNP3    0
0 859 RT      248.         .            .             ES     .            20 09 85   CRO      CNP3    0
01015 RT      398.         .            .             ES     .   0 1732   24 09 85   CRO      CNP3    0
0 873 RT      220.         .            .             ES     .            20 09 85   CRO      CNP3    0
0 969 RT      451.         .            .             ES     .   0 1704   21 09 85   CRO      CNP3    0
0 858 RT       63.         .            .    0  LF    ES     .            20 09 85   CRO      CNP3    0
01001 RT      215.         .            .             ES     .            24 09 85   CRO      CNP3    0
0 901 RT      189.         .            .             ES     .            20 09 85   CRO      CNP3    0
0 940 RT      171.         .            .             ES     .            21 09 85   CRO      CNP3    0
0 854 RT      200.         .            .             ES     .            20 09 85   CRO      CNP3    0
01009 RT      349.         .            .             ES     .   0 1727   24 09 85   CRO      CNP3    0
0 887 RT      227.         .            .             ES     .            20 09 85   CRO      CNP3    0
0 985 RT      384.         .            .             ES     .   0 1712   24 09 85   CRO      CNP3    0
0 913 RT      207.         .            .             ES     .            20 09 85   CRO      CNP3    0
0 991 RT      216.         .            .             ES     .            24 09 85   CRO      CNP3    0
0 865 RT      231.         .            .             ES     .            20 09 85   CRO      CNP3    0
0 945 RT      343.         .            .             ES     .   0 1436   21 09 85   CRO      CNP3    0
0 899 RT      238.         .            .             ES     .   0 1402   20 09 85   CRO      CNP3    0
01371 RT      368.         .            .             ES     .   0 8883   17 10 85   CRO      CNP3    0
0 861 RT      195.         .            .             ES     .            20 09 85   CRO      CNP3    0
0 961 RT      340.         .            .             ES     .   0 1449   21 09 85   CRO      CNP3    0
0 921 RT      484.         .            .             ES     .   0 1417   20 09 85   CRO      CNP3    0
0 999 RT      247.         .            .             ES     .   0 1720   24 09 85   CRO      CNP3    0
0 869 RT      299.         .            .             ES     .            20 09 85   CRO      CNP3    0
0 931 RT      262.         .            .             ES     .   0 1428   21 09 85   CRO      CNP3    0
0 908 RT      403          .            .             ES     .   0 1407   20 09 85   CRO      CNP3    0
01007 RT      298.         .            .             ES     .   0 1725   24 09 85   CRO      CNP3    0
0 890 RT      281.         .            .             ES     .            20 09 85   CRO      CNP3    0
0 975 RT      243.         .            .             ES     .   0 1708   21 09 85   CRO      CNP3    0
0 911 RT      265.         .            .             ES     .   0 1410   20 09 85   CRO      CNP3    0
0 995 RT      260.         .            .             ES     .   0 1717   24 09 85   CRO      CNP3    0
0 863 RT      493.         .            .             ES     .            20 09 85   CRO      CNP3    0
0 951 RT      131.         .            .             ES     .            21 09 85   CRO      CNP3    0
0 893 RT      240.         .            .             ES     .            20 09 85   CRO      CNP3    0
01013 RT      304.         .            .             ES     .   0 1730   24 09 85   CRO      CNP3    0
0 879 RT      342.         .            .             ES     .            20 09 85   CRO      CNP3    0
0 965 RT      231.         .            .             ES     .   0 1702   21 09 85   CRO      CNP3    0
0 919 RT      225.         .            .             ES     .            20 09 85   CRO      CNP3    0
01003 RT      208.         .            .             ES     .            24 09 85   CRO      CNP3    0
0 875 RT      445.         .            .             ES     .            20 09 85   CRO      CNP3    0
0 933 RT      290.         .            .             ES     .   0 1428   21 09 85   CRO      CNP3    0
0 903 RT      381.         .            .             ES     .   0 1404   20 09 85   CRO      CNP3    0
01011 RT      444.         .            .             ES     .   0 1726   24 09 85   CRO      CNP3    0
0 888 RT      240.         .            .             ES     .            20 09 85   CRO      CNP3    0
0 983 RT      358.         .            .             ES     .   0 1710   24 09 85   CRO      CNP3    0
0 915 RT      371.         .            .             ES     .   U 1413   20 09 85   CRO      CNP3    0
0 989 RT      182.         .            .             ES     .            24 09 85   CRO      CNP3    0
0 867 RT      333.         .            .             ES     .            20 09 85   CRO      CNP3    0
0 943 RT      288.         .            .             ES     .   0 1436   21 09 85   CRO      CNP3    0
0 897 RT      191.         .            .             ES     .            20 09 85   CRO      CNP3    0      END RUN # 1
01016 RT      238.         .            .             ES     .   0 1733   24 09 85   CRO      CNP3    0
0 882 RT      187.         .            .             ES     .            20 09 85   CRO      CNP3    0
0 959 RT      378.         .            .             ES     .   0 1447   21 09 85   CRO      CNP3    0
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                    RL&L ENVIRONMENTAL SERVICES LTD.
            FISHERIES DATA - PRINT OUT BY SPECIES AND LOCATION
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SAMPLE SP.  LENGTH  WEIGHT  SEX-  GONAD AGE AGE  CAPT MESH    TAG       DATE    LOCATION  SITE CAPT PRES      COMMENTS
   NO.       (MM)     (G)   MAT.  WT(G)     METH METH (CM)    NO.    DAY MO YR                  CODE CODE
.............................................................................................................................
D 923 RT    421.       .   18    .          ES    .           20 09 85  CRO    CNP3   1    ST. FULL SNAILS
D 998 RT    214.       .         .          ES    .           24 09 85  CRO    CNP3   0
D 872 RT    265.       .         .          ES    .           20 09 85  CRO    CNP3   0
D 925 RT    272.       .         .          ES    .  D 1420   20 09 85  CRO    CNP3   0
D 902 RT    407.       .         .          ES    .  D 1403   20 09 85  CRO    CNP3   0
D1006 RT    327.       .         .          ES    .  D 1724   24 09 85  CRO    CNP3   0
D 891 RT    218.       .         .          ES    .           20 09 85  CRO    CNP3   0
D 974 RT    253.       .         .          ES    .  D 1707   21 09 85  CRO    CNP3   0
D 910 RT    374.       .         .          ES    .  D 1409   20 09 85  CRO    CNP3   0
D 994 RT    281.       .         .          ES    .  D 1716   24 09 85  CRO    CNP3   0
D 862 RT     88.       .         .    0 LF  ES    .           20 09 85  CRO    CNP3   0
D 953 RT    391.       .         .          ES    .  D 1444   21 09 85  CRO    CNP3   0
D 898 RT    224.       .         .          ES    .           20 09 85  CRO    CNP3   0
D1010 RT    219.       .         .          ES    .           24 09 85  CRO    CNP3   0
D 878 RT    336.       .         .          ES    .  D 1502   20 09 85  CRO    CNP3   2
D 971 RT    308.       .         .          ES    .  D 1706   21 09 85  CRO    CNP3   0
D 918 RT    2[illegible]8.       .         .          ES    .  D 1415   20 09 85  CRO    CNP3   0
D1002 RT    211.       .         .          ES    .           24 09 85  CRO    CNP3   0
D 874 RT    445.       .         .          ES    .           20 09 85  CRO    CNP3   0
D 932 RT    283.       .         .          ES    .  D 1427   21 09 85  CRO    CNP3   0
D 904 RT    219.       .         .          ES    .           20 09 85  CRO    CNP3   0
D1008 RT    335.       .         .          ES    .  D 1726   24 09 85  CRO    CNP3   0
D 880 RT    206.       .         .          ES    .           20 09 85  CRO    CNP3   0
D 987 RT    268.       .         .          ES    .  D 1714   24 09 85  CRO    CNP3   0
D 914 RT    340.       .         .          ES    .  D 1412   20 09 85  CRO    CNP3   0
D 892 RT    233.       .         .          ES    .  D 1715   24 09 85  CRO    CNP3   0
D 866 RT    272.       .         .          ES    .           20 09 85  CRO    CNP3   0
D 948 RT    227.       .         .          ES    .  D 1441   21 09 85  CRO    CNP3   0
D 900 RT    215.       .         .          ES    .           20 09 85  CRO    CNP3   0
D1012 RT    446.       .         .          ES    .  D 1729   24 09 85  CRO    CNP3   0
D 870 RT    298.       .         .          ES    .           20 09 85  CRO    CNP3   0
D 954 RT    213.       .         .          ES    .           21 09 85  CRO    CNP3   0
D 922 RT    227.       .         .          ES    .  D 1418   20 09 85  CRO    CNP3   0
D1000 RT    242.       .         .          ES    .  D 1721   24 09 85  CRO    CNP3   0
D 864 RT    328.       .         .          ES    .           20 09 85  CRO    CNP3   0
D 928 RT    281.       .         .          ES    .  D 1423   21 09 85  CRO    CNP3   0
D 912 RT    263.       .         .          ES    .  D 1411   20 09 85  CRO    CNP3   0
D 996 RT    275.       .         .          ES    .  D 1718   24 09 85  CRO    CNP3   0
D 876 RT    351.       .         .          ES    .           20 09 85  CRO    CNP3   0
D 978 RT     92.       .         .    0 LF  ES    .           21 09 85  CRO    CNP3   0         END RUN # 3
D 920 RT    341.       .         .          ES    .  D 1416   20 09 85  CRO    CNP3   0
D1004 RT    274.       .         .          ES    .  D 1722   24 09 85  CRO    CNP3   0
D 888 RT    283.       .         .          ES    .           20 09 85  CRO    CNP3   0
D1367 RT    475.       .         .          ES    .  D 8880   17 10 85  CRO    CNP3   0
D 916 RT    332.       .         .          ES    .  D 1414   20 09 85  CRO    CNP3   0
D 968 RT    380.       .         .          ES    .  D 1703   21 09 85  CRO    CNP3   0
D 924 RT    291.       .         .          ES    .  D 1419   20 09 85  CRO    CNP3   0
D 942 RT    175.       .         .          ES    .           21 09 85  CRO    CNP3   0
D 982 RT    381.       .         .          ES    .  D 1709   24 09 85  CRO    CNP3   0
D 956 RT    134.       .         .          ES    .           21 09 85  CRO    CNP3   0
D 958 RT    445.       .         .          ES    .  D 1446   21 09 85  CRO    CNP3   2
D 946 RT    222.       .         .          ES    .  D 1439   21 09 85  CRO    CNP3   0
D 986 RT    474.       .         .          ES    .  D 1713   24 09 85  CRO    CNP3   0
D 952 RT    210.       .         .          ES    .           21 09 85  CRO    CNP3   0
D 970 RT    343.       .         .          ES    .  D 1705   21 09 85  CRO    CNP3   0
D 944 RT    279.       .         .          ES    .  D 1437   21 09 85  CRO    CNP3   0
D 984 RT    323.       .         .          ES    .  D 1711   24 09 85  CRO    CNP3   0
D 962 RT    265.       .         .          ES    .  D 1450   21 09 85  CRO    CNP3   0
D 988 RT    205.       .         .          ES    .           24 09 85  CRO    CNP3   0
D 986 RT    186.       .         .          ES    .           21 09 85  CRO    CNP3   0
D 980 RT    236.       .         .          ES    .  D 1448   21 09 85  CRO    CNP3   0
D 972 RT    218.       .         .          ES    .           21 09 85  CRO    CNP3   0
D 373 RT    344.    540.         .    3 SC  ES    .  D 1484   19 08 85  CRO    ES 1   0
D 269 RT    282.    200.         .      SC  ES    .  D 1466   19 08 85  CRO    ES 1   0
D 419 RT    290.    395.   11    .    2 SD  ES    .           19 08 85  CRO    ES 1   1
D1159 RT    554.   2460.         .          ES    .  D 7807   04 10 85  CRO    ES 1   0
D 305 RT    205.    100.         .      SC  ES    .           19 08 85  CRO    ES 1   0
D 273 RT    359.    600.         .      SC  ES    .  D 1468   19 08 85  CRO    ES 1   0
D 418 RT    239.    195.   11    .      SD  ES    .           19 08 85  CRO    ES 1   1
D1181 RT    290.    355.         .          ES    .  D 7921   04 10 85  CRO    ES 1   0
D 390 RT    312.    490.         .    2 SC  ES    .  D 1491   19 08 85  CRO    ES 1   0
D 271 RT    202.    140.         .      SC  ES    .           19 08 85  CRO    ES 1   0
D 420 RT    210.    140.    1    .      SD  ES    .           19 08 85  CRO    ES 1   1
D1145 RT    495.   1660.         .    4 SC  ES    .  D 7902   04 10 85  CRO    ES 1   0
D 319 RT    238.       .         .      SC  ES    .  D 1475   19 08 85  CRO    ES 1   0
D 275 RT    241.    220.         .    1 SC  ES    .  D 1471   19 08 85  CRO    ES 1   0
D 364 RT    368.    760.         .    3 SC  ES    .  D 1480   19 08 85  CRO    ES 1   0
D1197 RT    329.    460.         .          ES    .  D 7933   04 10 85  CRO    ES 1   0
D 292 RT    150.     50.         .      SC  ES    .           19 08 85  CRO    ES 1   0
D 270 RT    261.    290.         .      SC  ES    .  D 1467   19 08 85  CRO    ES 1   0
D 401 RT    282.    310.   11    .    2 SC  ES    .           19 08 85  CRO    ES 1   1
D1175 RT    340.    480.         .          ES    .  D 7916   04 10 85  CRO    ES 1   0
D 321 RT    308.    440.         .    2 SC  ES    .  D 1477   19 08 85  CRO    ES 1   0
D 274 RT    277.    325.         .      SC  ES    .  D 1469   19 08 85  CRO    ES 1   0
D 367 RT    185.     60.         .      SC  ES    .           19 08 85  CRO    ES 1   0
D1193 RT    255.    220.         .          ES    .  D 7929   04 10 85  CRO    ES 1   0
D 316 RT    153.     50.         .    1 SD  ES    .           19 08 85  CRO    ES 1   1
D 272 RT    140.     40.         .    1 SC  ES    .           19 08 85  CRO    ES 1   0
D 382 RT    260.    230.         .      SC  ES    .  D 1493   19 08 85  CRO    ES 1   0
D1147 RT    362.       .         .          ES    .  D 7904   04 10 85  CRO    ES 1   0
D 320 RT    311.    440.         .    2 SC  ES    .  D 1478   19 08 85  CRO    ES 1   0
D 276 RT    355.    620.         .    3 SC  ES    .  D 1470   19 08 85  CRO    ES 1   0
D 380 RT    177.       .         .    1 SD  ES    .           19 08 85  CRO    ES 1   1
D1205 RT    320.       .         .          ES    .  D 7941   04 10 85  CRO    ES 1   0
D 306 RT    223.       .         .    1 SC  ES    .  D 1472   19 08 85  CRO    ES 1   0
D1169 RT    147.     40.         .    1 SC  ES    .           04 10 85  CRO    ES 1   0
D 377 RT    183.     80.         .      SC  ES    .           19 08 85  CRO    ES 1   0
D1187 RT    288.    220.         .          ES    .  D 7924   04 10 85  CRO    ES 1   0
D 371 RT    410.    940.         .      SC  ES    .  D 1482   19 08 85  CRO    ES 1   0
D1146 RT    353.    700.         .    2 SC  ES    .  D 7903   04 10 85  CRO    ES 1   0
D 375 RT    150.     50.         .    1 SC  ES    .           19 08 85  CRO    ES 1   0
D1203 RT    488.       .         .          ES    .  D 7938   04 10 85  CRO    ES 1   0
D 368 RT    203.    110.         .      SC  ES    .           19 08 85  CRO    ES 1   0
D1177 RT    445.   1480.         .          ES    .  D 7918   04 10 85  CRO    ES 1   0
D 378 RT    208.    100.         .      SC  ES    .           19 08 85  CRO    ES 1   0
D1191 RT    344.    660.         .          ES    .  D 7927   04 10 85  CRO    ES 1   0
D 369 RT    278.    220.         .    2 SC  ES    .  D 1481   19 08 85  CRO    ES 1   0
D1181 RT    410.    980.         .          ES    .  D 7909   04 10 85  CRO    ES 1   0
D 374 RT    288.    280.         .      SC  ES    .  D 1485   19 08 85  CRO    ES 1   0
D1189 RT    258.    230.         .          ES    .  D 7935   04 10 85  CRO    ES 1   0
D 388 RT    228.     80.         .    1 SC  ES    .           19 08 85  CRO    ES 1   0
D1178 RT    330.    550.         .          ES    .  D 7917   04 10 85  CRO    ES 1   0
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RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY SPECIES AND LOCATION

SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY	MO	YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
0 378	RT	183.	35.		.	1	SC	ES	.		19	08	85	CRO	ES 1	0		
01183	RT	272.	240.		.			ES	.	0 7922	04	10	85	CRO	ES 1	0		
0 372	RT	442.	1400.		.	4	SC	ES	.	0 1463	19	08	85	CRO	ES 1	0		ST - 2LND
01158	RT	553.	2380.		.			ES	.	0 7908	04	10	85	CRO	ES 1	0		
0 376	RT	200.	100.		.		SC	ES	.		19	08	85	CRO	ES 1	0		
01201	RT	257.	200.		.			ES	.	0 7937	04	10	85	CRO	ES 1	0		
01178	RT	284.	290.		.			ES	.	0 7919	04	10	85	CRO	ES 1	0		
01195	RT	347.	500.		.			ES	.	0 7931	04	10	85	CRO	ES 1	0		
01163	RT	222.	180.		.			ES	.	0 7911	04	10	85	CRO	ES 1	0		
01198	RT	254.	200.		.			ES	.	0 7934	04	10	85	CRO	ES 1	0		
01180	RT	344.	550.		.			ES	.	0 7906	04	10	85	CRO	ES 1	0		
01185	RT	211.	110.		.			ES	.		04	10	85	CRO	ES 1	0		
01162	RT	288.	390.		.			ES	.	0 7910	04	10	85	CRO	ES 1	0		
01204	RT	486.	.		.			ES	.	0 7940	04	10	85	CRO	ES 1	0		
01190	RT	249.	215.		.			ES	.	0 7926	04	10	85	CRO	ES 1	0		
01182	RT	205.	90.		.			ES	.		04	10	85	CRO	ES 1	0		
01194	RT	250.	280.		.			ES	.	0 7930	04	10	85	CRO	ES 1	0		
01188	RT	230.	130.		.			ES	.	0 7925	04	10	85	CRO	ES 1	0		
01192	RT	383.	750.		.			ES	.	0 7928	04	10	85	CRO	ES 1	0		
01184	RT	263.	250.		.			ES	.	0 7923	04	10	85	CRO	ES 1	0		
01196	RT	248.	150.		.			ES	.	0 7932	04	10	85	CRO	ES 1	0		
0 777	RT	280.	.		.			ES	.	0 1852	22	08	85	CRO	ES 2	0		
0 238	RT	454.	1500.		.	4	SC	ES	.	0 1480	19	08	85	CRO	ES 2	0		
0 699	RT	298.	345.		.	2	SC	ES	.	0 1599	22	08	85	CRO	ES 2	0		
0 809	RT	395.	800.		.			ES	.	0 1678	22	08	85	CRO	ES 2	0		
0 739	RT	387.	900.		.	3	SC	ES	.	0 1624	22	08	85	CRO	ES 2	0		
0 235	RT	378.	700.		.	3	SC	ES	.	0 1457	19	08	85	CRO	ES 2	0		
0 725	RT	483.	.		.	4	SC	ES	.	0 1618	22	08	85	CRO	ES 2	0		
01109	RT	415.	1140.		.			ES	.	0 7978	04	10	85	CRO	ES 2	0		
0 793	RT	317.	390.		.			ES	.	0 1664	22	08	85	CRO	ES 2	0		
0 239	RT	275.	290.		.		SC	ES	.	0 1461	19	08	85	CRO	ES 2	0		
0 698	RT	426.	950.		.	4	SC	ES	.	0 1598	22	08	85	CRO	ES 2	0		
0 829	RT	414.	920.		.			ES	.	0 1687	22	08	85	CRO	ES 2	0		
0 741	RT	325.	380.		.	2	SC	ES	.	0 1626	22	08	85	CRO	ES 2	0		
0 236	RT	338.	600.		.		SC	ES	.	0 1458	19	08	85	CRO	ES 2	0		
0 701	RT	303.	790.		.	2	SC	ES	.	0 1601	22	08	85	CRO	ES 2	0		
01117	RT	314.	440.		.			ES	.	0 7984	04	10	85	CRO	ES 2	0		
0 769	RT	342.	580.		.	2	SC	ES	.	0 1644	22	08	85	CRO	ES 2	0		
0 813	RT	294.	320		.			ES	.	0 1682	22	08	85	CRO	ES 2	0		
0 724	RT	282.	240.		.	2	SC	ES	.	0 1615	22	08	85	CRO	ES 2	0		
01073	RT	392.	860.		.	3	SC	ES	.	0 7956	04	10	85	CRO	ES 2	0		
0 738	RT	315.	450.		.	2	SC	ES	.	0 1623	22	08	85	CRO	ES 2	0		
0 846	RT	356.	700.	16	.	3	SO	ES	.		22	08	85	CRO	ES 2	1		
0 711	RT	190.	85.		.	1	SC	ES	.		22	08	85	CRO	ES 2	0		
01137	RT	395.	960.		.			ES	.	0 7998	04	10	85	CRO	ES 2	0		
0 781	RT	221.	.		.			ES	.		22	08	85	CRO	ES 2	0		
0 797	RT	396.	880.		.			ES	.	0 1866	22	08	85	CRO	ES 2	0		
0 729	RT	186.	105.		.	1	SC	ES	.		22	08	85	CRO	ES 2	0		
01085	RT	137.	20.	99	.	1	SC	ES	.		04	10	85	CRO	ES 2	0		
0 740	RT	408.	980.		.	3	SC	ES	.	0 1625	22	08	85	CRO	ES 2	0		
0 837	RT	222.	170.		.			ES	.	0 1694	22	08	85	CRO	ES 2	0		
0 705	RT	392.	770.		.	3	SC	ES	.	0 1605	22	08	85	CRO	ES 2	0		
01121	RT	423.	1090		.			ES	.	0 7988	04	10	85	CRO	ES 2	0		
0 773	RT	338.	580.		.	2	SC	ES	.	0 1648	22	08	85	CRO	ES 2	0		
0 820	RT	278.	260.	11	.	2	SO	ES	.		22	08	85	CRO	ES 2	1		
0 727	RT	322.	420.		.	2	SC	ES	.	0 1618	22	08	85	CRO	ES 2	0		
01071	RT	400.	950.		.	3	SC	ES	.	0 7954	04	10	85	CRO	ES 2	0		
0 792	RT	287.	325.		.			ES	.	0 1663	22	08	85	CRO	ES 2	0		
0 833	RT	327.	470.		.			ES	.	0 1681	22	08	85	CRO	ES 2	0		
0 712	RT	208.	130.		.	1	SC	ES	.		22	08	85	CRO	ES 2	0		
01119	RT	394.	960.		.			ES	.	0 7986	04	10	85	CRO	ES 2	0		
0 771	RT	473.	1380.		.	4	SC	ES	.	0 1646	22	08	85	CRO	ES 2	0		
0 806	RT	386.	730.		.			ES	.	0 1677	22	08	85	CRO	ES 2	0		
0 731	RT	.	240.		.	1	SC	ES	.	0 1621	22	08	85	CRO	ES 2	0		
01101	RT	304.	400.		.			ES	.	0 7970	04	10	85	CRO	ES 2	0		
0 795	RT	301.	395.		.			ES	.	0 1666	22	08	85	CRO	ES 2	0		
0 641	RT	345.	.		.			ES	.	0 1699	22	08	85	CRO	ES 2	0		
0 703	RT	395.	800.		.	3	SC	ES	.	0 1603	22	08	85	CRO	ES 2	0		
01123	RT	335.	540.		.			ES	.	0 7990	04	10	85	CRO	ES 2	0		
0 779	RT	232.			.			ES	.	0 1653	22	08	85	CRO	ES 2	0		
0 616	RT	209.	.		.			ES	.		22	08	85	CRO	ES 2	0		
0 726	RT	462.	1460		.	4	SC	ES	.	0 1617	22	08	85	CRO	ES 2	0		
01074	RT	383.	875.		.	3	SC	ES	.	0 7957	04	10	85	CRO	ES 2	0		
0 794	RT	223.	190		.			ES	.	0 1665	22	08	85	CRO	ES 2	0		
0 831	RT	401.	750.		.			ES	.	0 1659	22	08	85	CRO	ES 2	0		
0 707	RT	298.	410.		.	2	SC	ES	.	0 1607	22	08	85	CRO	ES 2	0		
01118	RT	516.	1780		.			ES	.	0 7985	04	10	85	CRO	ES 2	0		
0 770	RT	340	800		.	2	SC	ES	.	0 1645	22	08	85	CRO	ES 2	0		
0 798	RT	321	470.	11	.	2	SO	ES	.		22	08	85	CRO	ES 2	1		
0 730	RT	220.	175		.	1	SC	ES	.	0 1620	22	08	85	CRO	ES 2	0		
01099	RT	374.	740.		.			ES	.	0 1409	04	10	85	CRO	ES 2	2		
0 796	RT	245.	200.		.			ES	.	0 1567	22	08	85	CRO	ES 2	0		
0 840	RT	284.	.		.			ES	.	0 1597	22	08	85	CRO	ES 2	0		
0 702	RT	355.	630.		.	3	SC	ES	.	0 1602	22	08	85	CRO	ES 2	0		
01122	RT	337.	640		.			ES	.	0 7989	04	10	85	CRO	ES 2	0		
0 774	RT	232	180		.	2	SC	ES	.	0 1649	22	08	85	CRO	ES 2	0		
0 614	RT	330.	540.		.			ES	.	0 1683	22	08	85	CRO	ES 2	0		
0 728	RT	304.	400		.	2	SC	ES	.	0 1619	22	08	85	CRO	ES 2	0		
01072	RT	404.	920		.	3	SC	ES	.	0 7955	04	10	85	CRO	ES 2	0		
0 772	RT	282.	350.		.	2	SC	ES	.	0 1647	22	08	85	CRO	ES 2	0		
0 835	RT	335.	500		.			ES	.	0 1693	22	08	85	CRO	ES 2	0		
0 706	RT	402.	790.		.	3	SC	ES	.	0 1606	22	08	85	CRO	ES 2	0		
01120	RT	352.	590.		.			ES	.	0 7987	04	10	85	CRO	ES 2	0		
0 778	RT	208.	.		.			ES	.		22	08	85	CRO	ES 2	0		
0 811	RT	342.	520.		.			ES	.	0 1680	22	08	85	CRO	ES 2	0		
0 732	RT	170.	70		.	1	SC	ES	.		22	08	85	CRO	ES 2	0		
01113	RT	484.	1550.		.			ES	.	0 7980	04	10	85	CRO	ES 2	0		
0 780	RT	204.			.			ES	.		22	08	85	CRO	ES 2	0		
0 830	RT	283.	270.		.			ES	.	0 1688	22	08	85	CRO	ES 2	0		
0 704	RT	387.	810.		.	3	SC	ES	.	0 1604	22	08	85	CRO	ES 2	0		
01124	RT	193.	60.		.			ES	.		04	10	85	CRO	ES 2	0		
0 810	RT	340.	580.		.			ES	.	0 1679	22	08	85	CRO	ES 2	0		
01089	RT	156.	40.		.	1	SC	ES	.		04	10	85	CRO	ES 2	0		
0 834	RT	274.	330.		.			ES	.	0 1692	22	08	85	CRO	ES 2	0		
01105	RT	271.	300.		.			ES	.	0 7974	04	10	85	CRO	ES 2	0		
0 812	RT	355.	610.		.			ES	.	0 1681	22	08	85	CRO	ES 2	0		
01083	RT	345.	580.		.	2	SC	ES	.	0 7988	04	10	85	CRO	ES 2	0		
0 832	RT	322.	420.		.			ES	.	0 1690	22	08	85	CRO	ES 2	0		
01111	RT	304.	380.		.			ES	.	0 7978	04	10	85	CRO	ES 2	0		
0 838	RT	204.	.		.			ES	.		22	08	85	CRO	ES 2	0		
01087	RT	335.	470.		.	2	SC	ES	.	0 7982	04	10	85	CRO	ES 2	0		
01103	RT	382.	785.		.			ES	.	0 7972	04	10	85	CRO	ES 2	0		

RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY SPECIES AND LOCATION

SAMPLE	SP.	LENGTH	WEIGHT	SEX-	GONAD	AGE	AGE	CAPT	MESH	TAG	DATE			LOCATION	SITE	CAPT	PRES	COMMENTS
NO.		(MM)	(G)	MAT.	WT(G)		METH	METH	(CM)	NO.	DAY	MO	YR			CODE	CODE	
01098	RT	324.	840.		.			ES	.	0 19[illegible]3	04	10	85	CRO	ES 2	2		
01115	RT	337.	560.		.			ES	.	0 7982	04	10	85	CRO	ES 2	0		
01081	RT	375.	700.		.			ES	.	0 2409	04	10	85	CRO	ES 2	2		
01107	RT	207.	110.		.	1	SC	ES	.		04	10	85	CRO	ES 2	0		
01094	RT	270.	275.		.	2	SC	ES	.	0 7866	04	10	85	CRO	ES 2	0		
01110	RT	392.	980.		.			ES	.	0 7977	04	10	85	CRO	ES 2	0		
01088	RT	338.	530.		.	2	SC	ES	.	0 7861	04	10	85	CRO	ES 2	0		
01102	RT	347.	675.		.			ES	.	0 7971	04	10	85	CRO	ES 2	0		
01100	RT	473.	1420.		.	4	SC	ES	.	0 7969	04	10	85	CRO	ES 2	0		
01114	RT	318.	500.		.			ES	.	0 7981	04	10	85	CRO	ES 2	0		
01090	RT	92.	.		.	0	SC	ES	.		04	10	85	CRO	ES 2	0		
01106	RT	319.	510.		.			ES	.	0 7975	04	10	85	CRO	ES 2	0		
01086	RT	496.	1820.		.			ES	.	0 7984	04	10	85	CRO	ES 2	0		SCALES EMBEDDED
01112	RT	476.	1520.		.	4	SD	ES	.		04	10	85	CRO	ES 2	1		ST-26 LARGE PLECOPS
01092	RT	329.	550.		.	2	SC	ES	.	0 7863	04	10	85	CRO	ES 2	0		
01104	RT	344.	670.		.			ES	.	0 7873	04	10	85	CRO	ES 2	0		
01116	RT	325.	560.		.			ES	.	0 7983	04	10	85	CRO	ES 2	0		
0 489	RT	347.	660.		.	3	SC	ES	.	0 1503	20	08	85	CRO	ES 3	0		
01264	RT	369.	750.		.			ES	.	0 7854	05	10	85	CRO	ES 3	0		
0 469	RT	177.	90.		.	1	SC	ES	.		20	08	85	CRO	ES 3	0		
01249	RT	380.	810.		.			ES	.	0 7844	05	10	85	CRO	ES 3	0		
0 517	RT	188.	95.		.	1	SC	ES	.		20	08	85	CRO	ES 3	0		
01271	RT	445.	1240.		.			ES	.	0 7858	05	10	85	CRO	ES 3	0		
0 443	RT	257.	225.		.		SC	ES	.		20	08	85	CRO	ES 3	0		
01217	RT	152.	30.		.			ES	.		05	10	85	CRO	ES 3	0		
0 493	RT	253.	205.		.	2	SC	ES	.	0 1507	20	08	85	CRO	ES 3	0		
01278	RT	411.	1010.		.			ES	.	0 7863	05	10	85	CRO	ES 3	0		
0 445	RT	212.	105.		.		SC	ES	.		20	08	85	CRO	ES 3	0		
01221	RT	180.	75.		.			ES	.		05	10	85	CRO	ES 3	0		
0 510	RT	257.	230.		.	2	SC	ES	.	0 1519	20	08	85	CRO	ES 3	0		
01261	RT	445.	1180.		.			ES	.	0 7851	05	10	85	CRO	ES 3	0		
0 442	RT	281.	270.		.	2	SC	ES	.		20	08	85	CRO	ES 3	0		
01216	RT	156.	45.		.			ES	.		05	10	85	CRO	ES 3	0		
0 481	RT	410.	1010.		.	3	SC	ES	.	0 1498	20	08	85	CRO	ES 3	0		
01260	RT	459.	1270.		.			ES	.	0 1713	05	10	85	CRO	ES 3	2		
0 463	RT	304.	400.		.	3	SC	ES	.		20	08	85	CRO	ES 3	0		
01219	RT	381.	840.		.			ES	.	0 7942	05	10	85	CRO	ES 3	0		
0 516	RT	149.	35.		.	1	SC	ES	.		20	08	85	CRO	ES 3	0		
01269	RT	325.	450.		.			ES	.	0 1724	05	10	85	CRO	ES 3	2		
0 444	RT	196.	115.		.	1	SC	ES	.		20	08	85	CRO	ES 3	0		
01218	RT	204.	115.		.			ES	.		05	10	85	CRO	ES 3	0		
0 497	RT	180.	70.		.	1	SC	ES	.		20	08	85	CRO	ES 3	0		
01262	RT	355.	565.		.			ES	.	0 7852	05	10	85	CRO	ES 3	0		
0 447	RT	202.	100.		.		SC	ES	.		20	08	85	CRO	ES 3	0		
01265	RT	413.	980.		.			ES	.	0 7855	05	10	85	CRO	ES 3	0		
0 511	RT	357.	600.		.	3	SC	ES	.	0 1520	20	08	85	CRO	ES 3	0		
01274	RT	347.	615.		.			ES	.	0 7861	05	10	85	CRO	ES 3	0		
0 471	RT	165.	60.		.	1	SC	ES	.		20	08	85	CRO	ES 3	0		
01259	RT	237.	.		.			ES	.	0 7950	05	10	85	CRO	ES 3	0		
0 487	RT	334.	540.		.	3	SC	ES	.	0 1502	20	08	85	CRO	ES 3	0		
01272	RT	455.	1230.		.			ES	.	0 7859	05	10	85	CRO	ES 3	0		
0 446	RT	266.	260.		.		SC	ES	.		20	08	85	CRO	ES 3	0		
01263	RT	290.	320.		.			ES	.	0 7853	05	10	85	CRO	ES 3	0		
0 495	RT	230.	160.		.	2	SC	ES	.	0 1509	20	08	85	CRO	ES 3	0		
01266	RT	318.	460.		.			ES	.		05	10	85	CRO	ES 3	1		MORTALITY
0 468	RT	218.	155.		.	2	SC	ES	.		20	08	85	CRO	ES 3	0		
01267	RT	386.	710.		.			ES	.	0 1677	05	10	85	CRO	ES 3	2		
0 483	RT	413.	1040.		.	4	SC	ES	.	0 1500	20	08	85	CRO	ES 3	0		
01268	RT	294.	400.		.			ES	.	0 7857	05	10	85	CRO	ES 3	0		
0 470	RT	236.	190.		.	2	SC	ES	.		20	08	85	CRO	ES 3	0		
01277	RT	162.	40.		.			ES	.		05	10	85	CRO	ES 3	0		
0 498	RT	209.	145.		.		SC	ES	.		20	08	85	CRO	ES 3	0		
01270	RT	381.	.		.			ES	.	0 1444	05	10	85	CRO	ES 3	2		
0 472	RT	265.	290.	1	.		SD	ES	.		20	08	85	CRO	ES 3	1		
01279	RT	239.	180.		.			ES	.	0 7865	05	10	85	CRO	ES 3	0		
0 491	RT	279.	300.		.	2	SC	ES	.	0 1505	20	08	85	CRO	ES 3	0		
01258	RT	.	.		.			ES	.	0 7949	05	10	85	CRO	ES 3	0		ESCAPED
0 494	RT	264.	210.		.		SC	ES	.	0 1508	20	08	85	CRO	ES 3	0		
01273	RT	296.	325.		.			ES	.	0 7860	05	10	85	CRO	ES 3	0		
0 482	RT	407.	960.		.		SC	ES	.	0 1499	20	08	85	CRO	ES 3	0		
01275	RT	396.	810.		.			ES	.	0 7862	05	10	85	CRO	ES 3	0		
0 496	RT	174.	65.		.	1	SC	ES	.		20	08	85	CRO	ES 3	0		
0 485	RT	203.	130.		.		SC	ES	.		20	08	85	CRO	ES 3	0		
0 484	RT	312.	480.		.	2	SC	ES	.		20	08	85	CRO	ES 3	0		
0 490	RT	298.	350.		.	2	SC	ES	.	0 1504	20	08	85	CRO	ES 3	0		
0 488	RT	206.	135.		.			ES	.		20	08	85	CRO	ES 3	0		
0 492	RT	266.	230.		.	2	SC	ES	.	0 1506	20	08	85	CRO	ES 3	0		
01294	RT	73.	.		.	0	LF	ES	.		05	10	85	CRO	ES 3A	0		
01291	RT	304.	380.		.			ES	.	0 7877	05	10	85	CRO	ES 3A	0		
01287	RT	525.	1550.		.			ES	.	0 7873	05	10	85	CRO	ES 3A	0		
01286	RT	423.	1175.		.			ES	.	0 7872	05	10	85	CRO	ES 3A	0		
01290	RT	341.	643.		.			ES	.	0 7876	05	10	85	CRO	ES 3A	0		
01289	RT	323.	455.		.			ES	.	0 7875	05	10	85	CRO	ES 3A	0		
01283	RT	365.	670.		.			ES	.	0 7869	05	10	85	CRO	ES 3A	0		
01295	RT	69.	.		.	0	LF	ES	.		05	10	85	CRO	ES 3A	0		
01292	RT	320.	420.		.			ES	.	0 7878	05	10	85	CRO	ES 3A	0		
0 139	RT	263.	220		.	3	SC	ES	.	0 1384	18	08	85	OLD	ES 1	0		
01419	RT	126.	.		.	1	SC	ES	.		19	10	85	OLD	ES 1	0		
0 181	RT	242.	200.		.		SC	ES	.	0 13[illegible]	18	08	85	OLD	ES 1	0		
01417	RT	174.	.		.	1	SC	ES	.		19	10	85	OLD	ES 1	0		
01435	RT	170.	.		.	1	SC	ES	.		19	10	85	OLD	ES 1	0		
0 227	RT	115.	.		.			ES	.		18	08	85	OLD	ES 1	0		
0 123	RT	260.	.		.	2	SC	ES	.	0 1377	18	08	85	OLD	ES 1	0		
0 205	RT	201.	130.		.			ES	.		18	08	85	OLD	ES 1	0		
01437	RT	155.	.		.			ES	.		19	10	85	OLD	ES 1	0		
0 229	RT	161.	.		.			ES	.		18	08	85	OLD	ES 1	0		
0 149	RT	174.	.		.			ES	.		18	08	85	OLD	ES 1	0		
0 169	RT	213.	140.		.		SC	ES	.		18	08	85	OLD	ES 1	0		
01482	RT	374.	630.		.	3	SC	ES	.	0 1780	19	10	85	OLD	ES 1	0		
0 228	RT	106.	.		.			ES	.		18	08	85	OLD	ES 1	0		
01412	RT	210.	.		.	2	SC	ES	.		19	10	85	OLD	ES 1	0		
0 201	RT	275.	310.		.	2	SC	ES	.	0 1400	18	08	85	OLD	ES 1	0		
01439	RT	198.	.		.			ES	.		19	10	85	OLD	ES 1	0		
0 177	RT	217.	140.		.		SC	ES	.		18	08	85	OLD	ES 1	0		
0 129	RT	177.	.		.	2	SC	ES	.		18	08	85	OLD	ES 1	0		
0 213	RT	132.	20.		.			ES	.		18	08	85	OLD	ES 1	0		
01418	RT	148.	.		.	1	SC	ES	.		19	10	85	OLD	ES 1	0		
0 165	RT	142.	30.	99	.	1	SD	ES	.		18	08	85	OLD	ES 1	1		
01416	RT	183.	.		.	2	SC	ES	.		19	10	85	OLD	ES 1	0		
0 197	RT	148.	.		.		SC	ES	.		18	08	85	OLD	ES 1	0		
01421	RT	138.	.		.	1	SC	ES	.		19	10	85	OLD	ES 1	0		
0 185	RT	178.	80.		.		SC	ES	.		18	08	85	OLD	ES 1	0		

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                              RL&L ENVIRONMENTAL SERVICES LTD.
                        FISHERIES DATA - PRINT OUT BY SPECIES AND LOCATION
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SAMPLE SP.   LENGTH  WEIGHT   SEX-  GONAD AGE AGE  CAPT MESH    TAG        DATE    LOCATION  SITE CAPT PRES        COMMENTS
  NO.         (MM)     (G)    MAT.  WT(G)     METH METH (CM)    NO.    DAY MO YR                  CODE CODE
.............................................................................................................................
0 141 RT    318.    480.           .   3  SC   ES    .    0 1388   18 08 85  OLD     ES  1    0
0 209 RT    204.    140.           .           ES    .             18 08 85  OLD     ES  1    0
01438 RT    175.       .           .           ES    .             19 10 85  OLD     ES  1    0
0 171 RT    161.     40.           .      SC   ES    .             18 08 85  OLD     ES  1    0
01420 RT    154.       .           .   1  SC   ES    .             19 10 85  OLD     ES  1    0
0 203 RT    214.    140.           .      SC   ES    .             18 08 85  OLD     ES  1    0
0 137 RT    132.       .           .      SC   ES    .             18 08 85  OLD     ES  1    0
0 175 RT    117.     20.           .      SC   ES    .             18 08 85  OLD     ES  1    0
0 122 RT    257.       .           .   2  SC   ES    .    0 1376   18 08 85  OLD     ES  1    0
0 217 RT    193.       .           .           ES    .             18 08 85  OLD     ES  1    0
0 1[illegible] RT    172.     70.           .      SC   ES    .             18 08 85  OLD     ES  1    0
0 167 RT    245.    220.           .      SC   ES    .    0 1390   18 08 85  OLD     ES  1    0
01436 RT    159.       .           .           ES    .             19 10 85  OLD     ES  1    0
0 200 RT    352.    700.           .   3  SC   ES    .    0 1394   18 08 85  OLD     ES  1    0
0 125 RT    217.       .           .      SC   ES    .             18 08 85  OLD     ES  1    0
0 183 RT    218.    140.           .      SC   ES    .             18 08 85  OLD     ES  1    0
0 124 RT    236.       .           .   2  SC   ES    .    0 1374   18 08 85  OLD     ES  1    0
0 207 RT    213.    150.           .           ES    .             18 08 85  OLD     ES  1    0
0 147 RT    205.    130.           .      SC   ES    .             18 08 85  OLD     ES  1    0
0 170 RT    195.    100.           .      SC   ES    .             18 08 85  OLD     ES  1    0
0 140 RT    227.    160.           .      SC   ES    .    0 1385   18 08 85  OLD     ES  1    0
0 202 RT    260.    240.           .      SC   ES    .    0 1399   18 08 85  OLD     ES  1    0
0 151 RT    204.    130.           .      SC   ES    .             18 08 85  OLD     ES  1    0
0 179 RT    254.    220.           .   2  SC   ES    .    0 1392   18 08 85  OLD     ES  1    0
0 131 RT    120.       .           .   1  SC   ES    .             18 08 85  OLD     ES  1    0
0 215 RT    177.       .           .           ES    .             18 08 85  OLD     ES  1    0
0 143 RT    159.     45.           .      SC   ES    .             18 08 85  OLD     ES  1    0
0 187 RT    140.     25.           .      SC   ES    .             18 08 85  OLD     ES  1    0
0 127 RT    237.       .           .      SC   ES    .    0 1360   18 08 85  OLD     ES  1    0
0 204 RT    249.    240.           .           ES    .    0 1451   18 08 85  OLD     ES  1    0
0 155 RT    183.     90.           .      SC   ES    .             18 08 85  OLD     ES  1    0
0 178 RT    215.    130.           .      SC   ES    .             18 08 85  OLD     ES  1    0
0 130 RT    227.       .           .      SC   ES    .    0 1361   18 08 85  OLD     ES  1    0
0 211 RT    234.    180            .           ES    .    0 1453   18 08 85  OLD     ES  1    0
0 146 RT    177.     60.           .   1  SC   ES    .             18 08 85  OLD     ES  1    0
0 182 RT    240.    220            .      SC   ES    .    0 1395   18 08 85  OLD     ES  1    0
0 126 RT    233.       .           .   2  SC   ES    .    0 1379   18 08 85  OLD     ES  1    0
0 214 RT    126.       .           .           ES    .             18 08 85  OLD     ES  1    0
0 150 RT    188.     80.           .      SC   ES    .             18 08 85  OLD     ES  1    0
0 180 RT    252.    225.           .      SC   ES    .    0 1393   18 08 85  OLD     ES  1    0
0 132 RT    432.   1220.           .   4  SC   ES    .    0 1382   18 08 85  OLD     ES  1    0
0 206 RT    205.    125.           .           ES    .             18 08 85  OLD     ES  1    0
0 142 RT    201     100.           .      SC   ES    .             18 08 85  OLD     ES  1    0
0 165 RT    125.     20.           .   1  SC   ES    .             18 08 85  OLD     ES  1    0
0 154 RT    196.     90.           .      SC   ES    .             18 08 85  OLD     ES  1    0
0 216 RT    133.       .           .           ES    .             18 08 85  OLD     ES  1    0
0 148 RT    227.    180.           .      SC   ES    .    0 1368   18 08 85  OLD     ES  1    0
0 184 RT    235.    180.           .      SC   ES    .    0 1398   18 08 85  OLD     ES  1    0
0 152 RT    199.     90            .      SC   ES    .             18 08 85  OLD     ES  1    0
0 210 RT    247.    180.           .           ES    .    0 1452   18 08 85  OLD     ES  1    0
0 144 RT    208.    100.           .      SC   ES    .             18 08 85  OLD     ES  1    0
0 188 RT    164.     50.           .   1  SD   ES    .             18 08 85  OLD     ES  1    1
0 208 RT    199.    110            .           ES    .             18 08 85  OLD     ES  1    0
0 212 RT    172.     50.           .           ES    .             18 08 85  OLD     ES  1    0
0 531 RT    264.       .           .   3  SC   ES    .    0 1535   21 08 85  OLD     ES  2    0
0 589 RT    225.    150.           .   2  SC   ES    .    0 1565   21 08 85  OLD     ES  2    0
0 540 RT    221.       .           .   2  SC   ES    .             21 08 85  OLD     ES  2    0
0 659 RT    211.    130.           .           ES    .             21 08 85  OLD     ES  2    0
0 637 RT    224.       .           .      SC   ES    .    0 1576   21 08 85  OLD     ES  2    0
0 677 RT    141.     30            .           ES    .             21 08 85  OLD     ES  2    0
0 565 RT    158.       .           .   1  SC   ES    .             21 08 85  OLD     ES  2    0
0 673 RT    165.     70.           .           ES    .             21 08 85  OLD     ES  2    0
0 636 RT    258.       .           .      SC   ES    .    0 1561   21 08 85  OLD     ES  2    0
0 661 RT    135.     30.           .           ES    .             21 08 85  OLD     ES  2    0
0 585 RT    231.    175.           .   2  SC   ES    .             21 08 85  OLD     ES  2    0
0 671 RT    248.    200.           .           ES    .    0 1568   21 08 85  OLD     ES  2    0
0 665 RT    192.     95.           .           ES    .             21 08 85  OLD     ES  2    0
0 679 RT    130.     25.           .           ES    .             21 08 85  OLD     ES  2    0
0 541 RT    189.       .           .   2  SC   ES    .             21 08 85  OLD     ES  2    0
0 675 RT    206.    130            .           ES    .             21 08 85  OLD     ES  2    0
0 645 RT    119.       .           .   1  SC   ES    .             21 08 85  OLD     ES  2    0
0 683 RT    110.       .           .           ES    .             21 08 85  OLD     ES  2    0
0 597 RT    182.     80            .   2  SC   ES    .             21 08 85  OLD     ES  2    0
0 670 RT    224.    145.           .           ES    .    0 1587   21 08 85  OLD     ES  2    0
0 684 RT    222.    135.           .           ES    .             21 08 85  OLD     ES  2    0
0 678 RT    186.     60.           .           ES    .             21 08 85  OLD     ES  2    0
0 563 RT    244.       .           .   2  SC   ES    .    0 1548   21 08 85  OLD     ES  2    0
0 674 RT    215.    110.           .           ES    .             21 08 85  OLD     ES  2    0
0 641 RT    183.     60            .   2  SC   ES    .             21 08 85  OLD     ES  2    0
0 680 RT    218.    105.           .           ES    .             21 08 85  OLD     ES  2    0
0 584 RT    261.    240.           .   2  SC   ES    .    0 1560   21 08 85  OLD     ES  2    0
0 672 RT    230     140.           .           ES    .    0 1589   21 08 85  OLD     ES  2    0
0 667 RT    218.    120            .           ES    .             21 08 85  OLD     ES  2    0
0 676 RT    239.    180.           .           ES    .    0 1590   21 08 85  OLD     ES  2    0
0 556 RT    202.       .           .   2  SC   ES    .             21 08 85  OLD     ES  2    0
0 649 RT    125.       .           .           ES    .             21 08 85  OLD     ES  2    0
0 593 RT    221.    125            .      SC   ES    .             21 08 85  OLD     ES  2    0
0 666 RT    273     240.           .           ES    .    0 1566   21 08 85  OLD     ES  2    0
0 557 RT     94        .           .   1  SC   ES    .             21 08 85  OLD     ES  2    0
0 639 RT    198.     80.           .      SC   ES    .             21 08 85  OLD     ES  2    0
0 587 RT    249.    210.           .   2  SC   ES    .    0 1563   21 08 85  OLD     ES  2    0
0 668 RT    210.    120.           .           ES    .             21 08 85  OLD     ES  2    0
0 546 RT    154.       .           .   1  SC   ES    .             21 08 85  OLD     ES  2    0
0 647 RT    142.       .           .   1  SC   ES    .             21 08 85  OLD     ES  2    0
0 601 RT    107.     15.           .   1  SC   ES    .             21 08 85  OLD     ES  2    0
0 643 RT    196.     95.           .   2  SC   ES    .             21 08 85  OLD     ES  2    0
0 564 RT    207        .           .   2  SC   ES    .             21 08 85  OLD     ES  2    0
0 651 RT    148.     40            .           ES    .             21 08 85  OLD     ES  2    0
0 588 RT    242.    185.           .   2  SD   ES    .    0 1562   21 08 85  OLD     ES  2    1
0 638 RT    230.    140.           .      SC   ES    .    0 1579   21 08 85  OLD     ES  2    0
0 544 RT    133.       .           .   1  SC   ES    .             21 08 85  OLD     ES  2    0
0 646 RT     98.       .           .   1  SC   ES    .             21 08 85  OLD     ES  2    0
0 591 RT    247.    210.           .      SC   ES    .    0 1567   21 08 85  OLD     ES  2    0
0 642 RT    206.     90.           .      SC   ES    .             21 08 85  OLD     ES  2    0
0 586 RT    132.       .           .   1  SC   ES    .             21 08 85  OLD     ES  2    0
0 650 RT    100.       .           .           ES    .             21 08 85  OLD     ES  2    0
0 588 RT    307.    400.           .   3  SC   ES    .    0 1584   21 08 85  OLD     ES  2    0
0 640 RT    211.    110.           .   2  SC   ES    .             21 08 85  OLD     ES  2    0
0 599 RT    198.     80.           .   2  SC   ES    .             21 08 85  OLD     ES  2    0
0 648 RT    120.       .           .   1  SC   ES    .             21 08 85  OLD     ES  2    0
0 595 RT    183.     50.           .   2  SC   ES    .             21 08 85  OLD     ES  2    0
0 644 RT    187.     70.           .      SC   ES    .             21 08 85  OLD     ES  2    0
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                                            RL&L ENVIRONMENTAL SERVICES LTD.
                                       FISHERIES DATA - PRINT OUT BY SPECIES AND LOCATION
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SAMPLE SP.   LENGTH  WEIGHT  SEX-  GONAD AGE AGE  CAPT MESH   TAG        DATE    LOCATION  SITE CAPT PRES        COMMENTS
  NO.         (MM)    (G)    MAT. WT(G)      METH METH (CM)   NO.    DAY MO YR                  CODE CODE
.....................................................................................................................................
D 603 RT      104.     10.              .  1  SC   ES    .            21 08 85  OLD       ES 2   0
D 652 RT      185.     65.              .          ES    .            21 08 85  OLD       ES 2   0
D 590 RT      244.    165.              .     SC   ES    .  0 1585    21 08 85  OLD       ES 2   0
D 598 RT      202.     95               .     SC   ES    .            21 08 85  OLD       ES 2   0
D 594 RT      240.    140.              .  2  SC   ES    .  0 1588    21 08 85  OLD       ES 2   0
D 602 RT      100.     10.              .  1  SC   ES    .            21 08 85  OLD       ES 2   0
D 592 RT      214.    110.              .  2  SC   ES    .            21 08 85  OLD       ES 2   0
D 600 RT      130.     25.              .  1  SC   ES    .            21 08 85  OLD       ES 2   0
D 596 RT      110.     20.              .  1  SC   ES    .            21 08 85  OLD       ES 2   0
D 604 RT      219.    140.   11         .  2  SC   ES    .            21 08 85  OLD       ES 2   1
D1065 RT      173.     60.              .     SC   ES    .            03 10 85  OLD       OMP1   0
D1063 RT      288.    280.              .  2  SC   ES    .  0 1750    03 10 85  OLD       OMP1   0
D1062 RT      365.    740.              .  2  SC   ES    .  0 1749    03 10 85  OLD       OMP1   0            RUN # 1
D1064 RT      149.     40.              .     SC   ES    .            03 10 85  OLD       OMP1   0
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* FISHERIES DATA - PRINTOUT BY LOCATION AND SITE *
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RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY LOCATION AND SITE
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SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY	MO	YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
0 979	DV	206.	.		.			ES	.		22	09	85	CAS	CAP1	0		
01017	DV	488.	.		.			ES	.	0 1734	24	09	85	CAS	CAP1	0		
0 981	MW	188.	.		.			ES	.		22	09	85	CAS	CAP1	0		
0 977	MW	287.	.		.			ES	.		22	09	85	CAS	CAP1	0		
01021	RT	218.	.		.			ES	.	0 1736	24	09	85	CAS	CAP1	0		
0 980	RT	169.	.		.			ES	.		22	09	85	CAS	CAP1	0		
01019	RT	128.	.		.			ES	.		24	09	85	CAS	CAP1	0		
0 978	RT	197.	.		.			ES	.		22	09	85	CAS	CAP1	0		
01029	RT	142.	.		.			ES	.		28	09	85	CAS	CAP1	0		
01018	RT	211.	.		.			ES	.		24	09	85	CAS	CAP1	0		
01025	RT	98.	.		.			ES	.		28	09	85	CAS	CAP1	0		
01020	RT	285.	.		.			ES	.	0 1735	24	09	85	CAS	CAP1	0		
01033	RT	140	.		.			ES	.		26	09	85	CAS	CAP1	0		
01023	RT	189.	.		.			ES	.		24	09	85	CAS	CAP1	0		
01031	RT	139.	.		.			ES	.		28	09	85	CAS	CAP1	0		
01027	RT	131.	.		.			ES	.		28	09	85	CAS	CAP1	0		
01034	RT	136.	.		.			ES	.		28	09	85	CAS	CAP1	0		
01022	RT	181.	.		.			ES	.		24	09	85	CAS	CAP1	0		
01030	RT	128.	.		.			ES	.		28	09	85	CAS	CAP1	0		
01026	RT	120.	.		.			ES	.		28	09	85	CAS	CAP1	0		
01032	RT	138.	.		.			ES	.		26	09	85	CAS	CAP1	0		
01024	RT	147.	.		.			ES	.		28	09	85	CAS	CAP1	0		
01028	RT	97.	.		.			ES	.		28	09	85	CAS	CAP1	0		
01320	DV	327.	435.		.			ES	.	0 7880	10	10	85	CAS	ES 1	0		
0 53	DV	237.	.		.	2	SC	ES	.		17	08	85	CAS	ES 1	0		
01317	DV	482.	1040.		.	4	SC	ES	.	0 7858	10	10	85	CAS	ES 1	0		
0 26	DV	193.	.	98	.	2	SC	ES	.		17	08	85	CAS	ES 1	0		
01339	DV	357.	510.		.	3	SC	ES	.	0 7894	10	10	85	CAS	ES 1	0		
0 62	DV	317.	.		.	3	SC	ES	.	0 1360	17	08	85	CAS	ES 1	0		
01352	DV	152.	30.		.	1	SC	ES	.		10	10	85	CAS	ES 1	0		
0 8	DV	180.	.	98	.	1	SC	ES	.		17	08	85	CAS	ES 1	0		
01323	LING	525.	980		.			ES	.	0 7882	10	10	85	CAS	ES 1	0		
0 20	LNS	138.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 21	LNS	385.	.	97	.			ES	.		17	08	85	CAS	ES 1	0		
0 93	MW	141.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 3	MW	168.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 30	MW	134.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 13	MW	122.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 109	MW	141.	.		.			ES	.		17	08	85	CAS	ES 1	0		
0 9	MW	184.	.	98	.	2	SC	ES	.		17	08	85	CAS	ES 1	0		
0 77	MW	218.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 27	MW	281.	.		.	5	SC	ES	.	0 1358	17	08	85	CAS	ES 1	0		
0 105	MW	201.	.		.			ES	.		17	08	85	CAS	ES 1	0		
0 4	MW	188.	.	98	.	2	SC	ES	.		17	08	85	CAS	ES 1	0		
0 45	MW	130.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 17	MW	176.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 117	MW	128.	.		.			ES	.		17	08	85	CAS	ES 1	0		
0 5	MW	141.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 88	MW	246.	.		.			ES	.	0 1366	17	08	85	CAS	ES 1	0		
0 23	MW	317.	.	97	.	7	SC	ES	.	0 1352	17	08	85	CAS	ES 1	0		
0 57	MW	153.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 11	MW	118.	.	98	.	1	SC	ES	.		17	08	85	CAS	ES 1	0		
0 37	MW	266.	.		.			ES	.	0 1358	17	08	85	CAS	ES 1	0		
0 15	MW	115.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 113	MW	219.	.		.			ES	.		17	08	85	CAS	ES 1	0		
0 6	MW	133.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 85	MW	198.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 25	MW	307.	.		.			ES	.	0 1355	17	08	85	CAS	ES 1	0		
0 107	MW	178.	.		.			ES	.		17	08	85	CAS	ES 1	0		
0 10	MW	185.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 67	MW	172.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 19	MW	125.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 119	MW	147.	.		.			ES	.		17	08	85	CAS	ES 1	0		
0 12	MW	157.	.	98	.	2	SC	ES	.		17	08	85	CAS	ES 1	0		
0 65	MW	276.	.		.			ES	.	0 1353	17	08	85	CAS	ES 1	0		
0 24	MW	372.	.	97	.	8	SC	ES	.	0 1354	17	08	85	CAS	ES 1	0		
0 95	MW	138.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 14	MW	138.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 33	MW	131.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 28	MW	231	.		.			ES	.		17	08	85	CAS	ES 1	0		
0 111	MW	198.	.		.			ES	.		17	08	85	CAS	ES 1	0		
0 18	MW	163.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 81	MW	188.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 16	MW	155.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 106	MW	232.	.		.			ES	.		17	08	85	CAS	ES 1	0		
01319	MW	277.	250.	17	.			ES	.		10	10	85	CAS	ES 1	0		
0 48	MW	129.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 118	MW	128.	.		.			ES	.		17	08	85	CAS	ES 1	0		
0 73	MW	243.	.		.			ES	.	0 1370	17	08	85	CAS	ES 1	0		
0 99	MW	266.	.	97	.			ES	.	0 1374	17	08	85	CAS	ES 1	0		
0 41	MW	225.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 115	MW	144.	.		.			ES	.		17	08	85	CAS	ES 1	0		
0 89	MW	133.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 108	MW	188.	.		.			ES	.		17	08	85	CAS	ES 1	0		
0 55	MW	230.	.		.	3	SC	ES	.		17	08	85	CAS	ES 1	0		
0 120	MW	116.	.		.			ES	.		17	08	85	CAS	ES 1	0		
0 63	MW	86	.	98	.	0	LF	ES	.		17	08	85	CAS	ES 1	0		
0 94	MW	169.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 31	MW	174.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 110	MW	154.	.		.			ES	.		17	08	85	CAS	ES 1	0		
0 79	MW	221.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
01322	MW	136.	25.		.			ES	.		10	10	85	CAS	ES 1	0		
0 47	MW	133.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
01325	MW	360.	650.	8	.	7	SC	ES	.	0 7884	10	10	85	CAS	ES 1	0		
0 71	MW	284.	.		.			ES	.	0 1368	17	08	85	CAS	ES 1	0		
0 88	MW	300.	.	97	.			ES	.	0 1373	17	08	85	CAS	ES 1	0		
0 40	MW	228.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 114	MW	198.	.		.			ES	.		17	08	85	CAS	ES 1	0		
0 87	MW	131.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
01331	MW	281.	245.	8	.	3	SC	ES	.	0 7890	10	10	85	CAS	ES 1	0		
0 60	MW	137.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
01333	MW	185.	60.	99	.	2	SC	ES	.		10	10	85	CAS	ES 1	0		
0 58	MW	253.	.		.			ES	.	0 1365	17	08	85	CAS	ES 1	0		
0 96	MW	187.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 35	MW	123.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 112	MW	188.	.		.			ES	.		17	08	85	CAS	ES 1	0		
0 83	MW	185.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
01327	MW	285.	300.	8	.	4	SC	ES	.	0 7888	10	10	85	CAS	ES 1	0		
0 51	MW	72.	.	98	.	0	LF	ES	.		17	08	85	CAS	ES 1	0		
01349	MW	242.	155.		.	3	SC	ES	.		10	10	85	CAS	ES 1	0		
0 75	MW	221.	.		.			ES	.	0 5849	17	08	85	CAS	ES 1	2		
0 116	MW	200.	.		.			ES	.		17	08	85	CAS	ES 1	0		

RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY LOCATION AND SITE
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SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY	MO	YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
0 43	MW	148.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
01316	MW	213.	130.		.			ES	.		10	10	85	CAS	ES 1	0		
0 21	MW	125.	.	99	.			ES	.		17	08	85	CAS	ES 1	0		
01329	MW	276.	255.	8	.	5	SC	ES	.	0 7888	10	10	85	CAS	ES 1	0		
0 55	MW	178.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 64	MW	280.	.		.			ES	.	0 1381	17	08	85	CAS	ES 1	0		
0 32	MW	172.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 78	MW	202.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 48	MW	134.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 70	MW	285.	.		.			ES	.	0 1387	17	08	85	CAS	ES 1	0		
0 38	MW	239.	.		.	3	SC	ES	.	0 1359	17	08	85	CAS	ES 1	0		
0 88	MW	220.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 58	MW	138.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 66	MW	260.	.		.			ES	.	0 1384	17	08	85	CAS	ES 1	0		
0 34	MW	126.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
F 82	MW	218.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 50	MW	77.	.	98	.	0	LF	ES	.		17	08	85	CAS	ES 1	0		
0 74	MW	235.	.		.			ES	.		17	08	85	CAS	ES 1	0		
0 42	MW	228.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 90	MW	147.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
01332	MW	257.	210.	8	.	3	SC	ES	.	0 7881	10	10	85	CAS	ES 1	0		
01334	MW	245.	180.	99	.	4	SC	ES	.		10	10	85	CAS	ES 1	0		
0 36	MW	180.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 80	MW	190.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 46	MW	150.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 72	MW	230.	.		.			ES	.	0 1389	17	08	85	CAS	ES 1	0		
0 44	MW	145.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 88	MW	142.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
01368	MW	171.	50.		.	2	SC	ES	.		10	10	85	CAS	ES 1	0		
01350	MW	143.	40.		.	1	SC	ES	.		10	10	85	CAS	ES 1	0		
01328	MW	252.	190.	8	.	3	SC	ES	.	0 7887	10	10	85	CAS	ES 1	0		
0 84	MW	198.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
0 52	MW	72.	.	98	.	0	LF	ES	.		17	08	85	CAS	ES 1	0		
0 76	MW	213.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
01324	MW	314.	325.	8	.			ES	.	0 7883	10	10	85	CAS	ES 1	0		
0 92	MW	150.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
01326	MW	288.	280.	8	.	4	SC	ES	.	0 7885	10	10	85	CAS	ES 1	0		
01330	MW	267.	230.	8	.	4	SC	ES	.	0 7889	10	10	85	CAS	ES 1	0		
0 1	RT	211.	.	98	.	2	SC	ES	.		17	08	85	CAS	ES 1	0		
0 101	RT	222.	.		.	2	SC	ES	.	0 1371	17	08	85	CAS	ES 1	0		
0 22	RT	571.	.	57	.		SC	ES	.	0 1353	17	08	85	CAS	ES 1	0		EST. @ 5-6 lbs
0 29	RT	291.	.		.	3	SC	ES	.	0 1357	17	08	85	CAS	ES 1	0		
0 7	RT	285.	.		.	3	SC	ES	.	0 1351	17	08	85	CAS	ES 1	0		
0 121	RT	121.	.		.	1	SC	ES	.		17	08	85	CAS	ES 1	0		
01321	RT	315.	400.		.	3	SC	ES	.	0 7881	10	10	85	CAS	ES 1	0		
0 61	RT	214.	.		.	2	SC	ES	.		17	08	85	CAS	ES 1	0		
0 2	RT	115.	.	98	.	1	SC	ES	.		17	08	85	CAS	ES 1	0		
01335	RT	223.	140.		.	2	SC	ES	.	0 7892	10	10	85	CAS	ES 1	0		
0 54	RT	120.	.	98	.			ES	.		17	08	85	CAS	ES 1	0		
01337	RT	161.	45.		.	1	SC	ES	.		10	10	85	CAS	ES 1	0		
01338	RT	172.	70.		.	2	SC	ES	.		10	10	85	CAS	ES 1	0		
01347	RT	129.	.		.	1	SC	ES	.		10	10	85	CAS	ES 1	0		
0 39	RT	219.	.	98	.	2	SC	ES	.		17	08	85	CAS	ES 1	0		
01341	RT	286.	215.		.	3	SC	ES	.	0 7896	10	10	85	CAS	ES 1	0		
01342	RT	183.	50.		.	2	SC	ES	.		10	10	85	CAS	ES 1	0		
01343	RT	211.	110.		.	2	SC	ES	.		10	10	85	CAS	ES 1	0		
01340	RT	344.	520.		.	3	SC	ES	.	0 7897	10	10	85	CAS	ES 1	0		
01345	RT	163.	55.		.	2	SC	ES	.	0 7895	10	10	85	CAS	ES 1	0		
01346	RT	149.	35.		.	2	SC	ES	.		10	10	85	CAS	ES 1	0		
0 103	RT	223.	.		.	2	SC	ES	.	0 1375	17	08	85	CAS	ES 1	0		
01336	RT	232.	160.		.	2	SC	ES	.	0 7893	10	10	85	CAS	ES 1	0		
01351	RT	145.	45.		.	1	SC	ES	.		10	10	85	CAS	ES 1	0		
0 67	RT	203.	.		.	2	SC	ES	.		17	08	85	CAS	ES 1	0		
0 102	RT	215.	.		.		SC	ES	.		17	08	85	CAS	ES 1	0		
0 59	RT	218.	.		.	2	SC	ES	.		17	08	85	CAS	ES 1	0		
0 100	RT	220.	.		.	2	SC	ES	.		17	08	85	CAS	ES 1	0		
01344	RT	221.	125.		.		SC	ES	.	0 7888	10	10	85	CAS	ES 1	0		
0 104	RT	230.	.		.	2	SC	ES	.	0 1362	17	08	85	CAS	ES 1	0		
01316	DV	268.	163.	1	.	2	SD	ES	.		08	10	85	CAS	ES 2	1		ST-1/4FULL FISH REM
01305	MW	74.	.	99	.	0	LF	ES	.		08	10	85	CAS	ES 2	1		
01302	MW	81.	.	99	.	0	LF	ES	.		08	10	85	CAS	ES 2	1		
01299	MW	179.	52.	99	.	2	SC	ES	.		08	10	85	CAS	ES 2	1		
01304	MW	83.	.	99	.	0	LF	ES	.		08	10	85	CAS	ES 2	1		
01301	MW	90.	6.	99	.	0	SC	ES	.		08	10	85	CAS	ES 2	1		
01298	MW	305.	412.	8	.	6	SC	ES	.		08	10	85	CAS	ES 2	1		
01303	MW	75.	.	99	.	0	LF	ES	.		08	10	85	CAS	ES 2	1		
01300	MW	79.	4.	99	.	0	LF	ES	.		08	10	85	CAS	ES 2	1		
01297	MW	334.	507.	17	.	6	SC	ES	.		08	10	85	CAS	ES 2	1		
01306	MW	78.	.	99	.	0	LF	ES	.		08	10	85	CAS	ES 2	1		
01296	MW	275.	233.	17	.	3	SC	ES	.		08	10	85	CAS	ES 2	1		
01307	RT	115.	16.	99	.	1	SD	ES	.		08	10	85	CAS	ES 2	1		
01310	RT	135.	28.	99	.	1	SD	ES	.		08	10	85	CAS	ES 2	1		
01309	RT	126.	22.	99	.	1	SD	ES	.		08	10	85	CAS	ES 2	1		
01308	RT	139.	28.	99	.	1	SD	ES	.		08	10	85	CAS	ES 2	1		
01311	RT	200.	82.	11	.	2	SD	ES	.		08	10	85	CAS	ES 2	1		ST-3/4 FULL CORIX
01314	RT	247.	194.	11	.	2	SD	ES	.		08	10	85	CAS	ES 2	1		ST-FULL CORIX
01313	RT	186.	65.	1	.		SD	ES	.		08	10	85	CAS	ES 2	1		ST-1/2 FULL CORIX
01312	RT	204.	86.	1	.	2	SD	ES	.		08	10	85	CAS	ES 2	1		ST-1/4 FULL CORIX
01315	RT	237.	156.	11	.	2	SD	ES	.		08	10	85	CAS	ES 2	1		ST-3/4 FULL CORIX
01042	BNT	273.	.		.	1	SC	ES	.	0 1740	02	10	85	CRD	CHP1	0		
01059	BNT	232.	180.	20	.	1	SC	ES	.	0 1747	02	10	85	CRD	CHP1	0		
01048	BNT	356.	830.	11	.	2	SD	ES	.		02	10	85	CRD	CHP1	1		
01060	BNT	348.	810.	20	.	2	SC	ES	.	0 1746	02	10	85	CRD	CHP1	0		
01052	CT	285.	1744.		.	2	SC	ES	.	0 1744	02	10	85	CRD	CHP1	0		
01053	MW	143.	.		.			ES	.		02	10	85	CRD	CHP1	0		
01043	MW	143.	.		.			ES	.		02	10	85	CRD	CHP1	0		
01057	MW	278.	.	17	.		SC	ES	.	0 1748	02	10	85	CRD	CHP1	0		
01045	MW	162.	.		.			ES	.		02	10	85	CRD	CHP1	0		
01055	MW	185.	.		.			ES	.		02	10	85	CRD	CHP1	0		
01044	MW	160.	.		.			ES	.		02	10	85	CRD	CHP1	0		
01058	MW	110.	.		.	0	LF	ES	.		02	10	85	CRD	CHP1	0		
01047	MW	108.	.		.	0	LF	ES	.		02	10	85	CRD	CHP1	0		
01054	MW	332.	420.	17	.	6	SC	ES	.	0 1745	02	10	85	CRD	CHP1	0		
01046	MW	141.	.		.			ES	.		02	10	85	CRD	CHP1	0		
01056	MW	152.	.		.	1	SC	ES	.		02	10	85	CRD	CHP1	0		
01039	RT	445.	.		.			ES	.	0 1448	02	10	85	CRD	CHP1	2		
01061	RT	72.	.		.	0	LF	ES	.		02	10	85	CRD	CHP1	0		
01049	RT	362.	.		.			ES	.	0 1741	02	10	85	CRD	CHP1	0		
01041	RT	210.	.		.	2	SC	ES	.		02	10	85	CRD	CHP1	0		
01051	RT	313.	410.		.	2	SC	ES	.	0 1743	02	10	85	CRD	CHP1	0		
01040	RT	239.	.		.	1	SC	ES	.	0 1739	02	10	85	CRD	CHP1	0		
01050	RT	388.	880.		.	3	SC	ES	.	0 1742	02	10	85	CRD	CHP1	0		

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                           RL&L ENVIRONMENTAL SERVICES LTD.
                    FISHERIES DATA - PRINT OUT BY LOCATION AND SITE
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SAMPLE SP.  LENGTH  WEIGHT  SEX- GONAD AGE AGE  CAPT MESH    TAG       DATE     LOCATION  SITE CAPT PRES      COMMENTS
  NO.        (MM)    (G)    MAT. WT(G)     METH METH (CM)    NO.   DAY MO YR                   CODE CODE
.........................................................................................................................
01038 MW     316.    380.    7    .   8  SC   ES    .            02 10 85   CRO     CNP2   1
01035 RT     390.    730.         .   3  SC   ES    .   O 1737   02 10 85   CRO     CNP2   0
01037 RT      75.       .         .   0  LF   ES    .            02 10 85   CRO     CNP2   0
01036 RT     406.    876.         .   3  SC   ES    .   O 1738   02 10 85   CRO     CNP2   0
01383 BNT    305.       .         .           ES    .   O 8885   17 10 85   CRO     CNP3   0
01402 BNT    539.       .   18    .   5  SC   ES    .   O 8893   17 10 85   CRO     CNP3   0        EGG DIAM = 4.4 mm
01385 BNT    380.       .   18    .           ES    .   O 8890   17 10 85   CRO     CNP3   0
0 851 BNT    345.       .         .           ES    .   Y 4621   20 09 85   CRO     CNP3   0        RUN # 1
01464 BNT               .         .           ES    .   O 1625   24 09 85   CRO     CNP3   2
0 828 BNT    289.       .         .           ES    .   O 1621   20 09 85   CRO     CNP3   0        END RUN # 2
01466 BNT               .         .           ES    .   O 1433   24 09 85   CRO     CNP3   2
0 871 BNT    257.       .         .           ES    .            20 09 85   CRO     CNP3   0
0 890 BNT    203.       .         .           ES    .            24 09 85   CRO     CNP3   0
0 856 BNT    283.       .         .           ES    .            20 09 85   CRO     CNP3   0
0 883 BNT    220.       .         .           ES    .   O 1701   21 09 85   CRO     CNP3   0
0 894 BNT    233.       .         .           ES    .            20 09 85   CRO     CNP3   0
01465 BNT               .         .           ES    .   O 1632   24 09 85   CRO     CNP3   2
0 850 BNT    256.       .         .           ES    .            20 09 85   CRO     CNP3   0
0 847 BNT    247.       .         .           ES    .   O 1640   21 09 85   CRO     CNP3   0
0 863 BNT    231.       .         .           ES    .            20 09 85   CRO     CNP3   0
01014 BNT    335.       .         .           ES    .   O 1731   24 09 85   CRO     CNP3   0
0 905 BNT    230.       .         .           ES    .   O 1405   20 09 85   CRO     CNP3   0
0 834 BNT    241.       .         .           ES    .   O 1429   21 09 85   CRO     CNP3   0
0 866 BNT    415.       .    7    .           ES    .            20 09 85   CRO     CNP3   0
0 949 BNT    229.       .         .           ES    .   O 1442   21 09 85   CRO     CNP3   0
0 898 BNT    243.       .         .           ES    .   O 1401   20 09 85   CRO     CNP3   0
0 929 BNT    245.       .         .           ES    .   O 1424   21 09 85   CRO     CNP3   0        START RUN # 2
0 884 BNT    260.       .         .           ES    .            20 09 85   CRO     CNP3   0
0 954 BNT    246.       .         .           ES    .   O 1445   21 09 85   CRO     CNP3   0
0 906 BNT    467.       .         .           ES    .   O 1406   20 09 85   CRO     CNP3   0
0 937 BNT    228.       .         .           ES    .   O 1432   21 09 85   CRO     CNP3   0
0 889 BNT    342.       .         .           ES    .            20 09 85   CRO     CNP3   0
0 950 BNT    249.       .         .           ES    .   O 1443   21 09 85   CRO     CNP3   0
0 892 BNT    236.       .         .           ES    .   O 1622   20 09 85   CRO     CNP3   2
0 930 BNT    346.       .         .           ES    .   O 1425   21 09 85   CRO     CNP3   0
0 935 BNT    244        .         .           ES    .   O 1430   21 09 85   CRO     CNP3   0
0 939 BNT    231.       .         .           ES    .   O 1434   21 09 85   CRO     CNP3   0
0 936 BNT    238        .         .           ES    .   O 1431   21 09 85   CRO     CNP3   0
0 938 BNT    229        .         .           ES    .   O 1433   21 09 85   CRO     CNP3   0
01381 MW     312        .   18    .           ES    .            17 10 85   CRO     CNP3   0
01400 MW     240.       .    7    .           ES    .            17 10 85   CRO     CNP3   0
01386 MW     271.       .    8    .           ES    .            17 10 85   CRO     CNP3   0
0 855 MW     245.       .         .           ES    .            20 09 85   CRO     CNP3   0
01399 MW     307.       .    8    .           ES    .            17 10 85   CRO     CNP3   0
01398 MW     222.       .    8    .           ES    .            17 10 85   CRO     CNP3   0
01362 MW     264.       .         .           ES    .            17 10 85   CRO     CNP3   0
0 987 MW             326.         .           ES    .   O 1529   21 09 85   CRO     CNP3   2
01357 MW     282.       .    8    .           ES    .            17 10 85   CRO     CNP3   0
0 907 MW     332.       .         .           ES    .   O 1515   20 09 85   CRO     CNP3   2
01356 MW     281.       .    8    .           ES    .            17 10 85   CRO     CNP3   0
0 885 MW     240        .         .           ES    .   O 1531   20 09 85   CRO     CNP3   2
01355 MW     340.       .   18    .           ES    .            17 10 85   CRO     CNP3   0
01361 MW     322.       .   17    .           ES    .            17 10 85   CRO     CNP3   0
01359 MW     254.       .    8    .           ES    .            17 10 85   CRO     CNP3   0
01374 MW     304.       .    8    .           ES    .            17 10 85   CRO     CNP3   0
01375 MW     316.       .   17    .           ES    .            17 10 85   CRO     CNP3   0
01360 MW     289.       .   17    .           ES    .            17 10 85   CRO     CNP3   0
01358 MW     317.       .    8    .           ES    .            17 10 85   CRO     CNP3   0
01390 MW     226.       .   55    .           ES    .            17 10 85   CRO     CNP3   0
01387 MW     265.       .   17    .           ES    .            17 10 85   CRO     CNP3   0
01376 MW     306.       .    8    .           ES    .            17 10 85   CRO     CNP3   0
01389 MW     281.       .    8    .           ES    .            17 10 85   CRO     CNP3   0
01388 MW     260.       .   17    .           ES    .            17 10 85   CRO     CNP3   0
01391 MW     259.       .         .           ES    .            17 10 85   CRO     CNP3   0
01392 MW     304.       .   17    .           ES    .            17 10 85   CRO     CNP3   0
01377 MW     272.       .    8    .           ES    .            17 10 85   CRO     CNP3   0
01394 MW     255.       .   17    .           ES    .            17 10 85   CRO     CNP3   0
01379 MW     293.       .    8    .           ES    .            17 10 85   CRO     CNP3   0
01393 MW     287.       .    8    .           ES    .            17 10 85   CRO     CNP3   0
01395 MW     271        .   17    .           ES    .            17 10 85   CRO     CNP3   0
01396 MW     256.       .   17    .           ES    .            17 10 85   CRO     CNP3   0
01397 MW     221        .    8    .           ES    .            17 10 85   CRO     CNP3   0
01469 RT                .         .           ES    .   O 1408   24 09 85   CRO     CNP3   2
01353 RT     419.       .         .           ES    .   O 7899   17 10 85   CRO     CNP3   0
0 852 RT     310.       .         .           ES    .   Y 4419   20 09 85   CRO     CNP3   0
01 01 RT     419.       .         .   3  SC   ES    .   O 8891   17 10 85   CRO     CNP3   0
0 941 RT     234.       .         .           ES    .   O 1438   21 09 85   CRO     CNP3   0
01363 RT     419.       .         .           ES    .   O 7978   17 10 85   CRO     CNP3   2
0 908 RT     414.       .         .           ES    .   O 1408   20 09 85   CRO     CNP3   0
01365 RT     389.    780.         .   3  SC   ES    .            17 10 85   CRO     CNP3   1
0 997 RT     238.       .         .           ES    .   O 1719   24 09 85   CRO     CNP3   0
01364 RT     371.       .         .           ES    .   O 8677   17 10 85   CRO     CNP3   0
0 857 RT     230.       .         .           ES    .            20 09 85   CRO     CNP3   0
01367 RT     475.       .         .           ES    .   O 8880   17 10 85   CRO     CNP3   0
0 985 RT     384.       .         .           ES    .   O 1712   24 09 85   CRO     CNP3   0
01370 RT     322.       .         .           ES    .   O 8882   17 10 85   CRO     CNP3   0
0 861 RT     155.       .         .           ES    .            20 09 85   CRO     CNP3   0
01369 RT     403.       .         .           ES    .   O 8881   17 10 85   CRO     CNP3   0
01468 RT                .         .           ES    .   O 1436   24 09 85   CRO     CNP3   2
01368 RT     461.       .         .           ES    .   O 1713   17 10 85   CRO     CNP3   2
0 853 RT     248.       .         .           ES    .   Y 4420   20 09 85   CRO     CNP3   0
01371 RT     348.       .         .           ES    .   O 8883   17 10 85   CRO     CNP3   0
0 927 RT     389.       .         .           ES    .   O 1422   21 09 85   CRO     CNP3   0        START RUN # 3
01382 RT     312.       .         .           ES    .   O 8887   17 10 85   CRO     CNP3   0
0 895 RT     235.       .         .           ES    .            20 09 85   CRO     CNP3   0
01373 RT     347.       .         .           ES    .   O 8885   17 10 85   CRO     CNP3   0
01005 RT     408.       .         .           ES    .   O 1723   24 09 85   CRO     CNP3   0
01372 RT     357.       .         .           ES    .   O 8884   17 10 85   CRO     CNP3   0
0 859 RT     248.       .         .           ES    .            20 09 85   CRO     CNP3   0
01354 RT     389.       .         .   3  SC   ES    .   O 7800   17 10 85   CRO     CNP3   0
0 957 RT     345.       .         .           ES    .            21 09 85   CRO     CNP3   0
01380 RT     531.       .         .           ES    .   O 8776   17 10 85   CRO     CNP3   0
0 877 RT     281.       .         .           ES    .            20 09 85   CRO     CNP3   0
01384 RT     328.       .         .           ES    .   O 8889   17 10 85   CRO     CNP3   0
01467 RT                .         .           ES    .   O 1422   24 09 85   CRO     CNP3   2
01366 RT     437.       .         .           ES    .   O 8879   17 10 85   CRO     CNP3   0
0 856 RT      83.       .         .   0  LF   ES    .            20 09 85   CRO     CNP3   0
01374 RT     308.       .         .           ES    .   O 8888   17 10 85   CRO     CNP3   0
0 858 RT     218.       .         .           ES    .            21 09 85   CRO     CNP3   0
0 817 RT     209.       .         .           ES    .            20 09 85   CRO     CNP3   0
0 893 RT     185.       .         .           ES    .            24 09 85   CRO     CNP3   0
0 854 RT     200.       .         .           ES    .            20 09 85   CRO     CNP3   0
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RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY LOCATION AND SITE

SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY	MO	YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
0 973	RT	221.	.		.			ES	.		21	09	85	CRO	CNP3	0		
0 873	RT	220.	.		.			ES	.		20	09	85	CRO	CNP3	0		
01470	RT	.	.		.			ES	.	0 1417	24	09	85	CRO	CNP3	2		
0 901	RT	189.	.		.			ES	.		20	09	85	CRO	CNP3	0		
0 933	RT	280.	.		.			ES	.	0 1428	21	09	85	CRO	CNP3	0		
0 890	RT	281.	.		.			ES	.		20	09	85	CRO	CNP3	0		
01015	RT	398.	.		.			ES	.	0 1732	24	09	85	CRO	CNP3	0		
0 913	RT	207.	.		.			ES	.		20	09	85	CRO	CNP3	0		
0 989	RT	451.	.		.			ES	.	0 1704	21	09	85	CRO	CNP3	0		
0 885	RT	231.	.		.			ES	.		20	09	85	CRO	CNP3	0		
01001	RT	215.	.		.			ES	.		24	09	85	CRO	CNP3	0		
0 899	RT	238.	.		.			ES	.	0 1402	20	09	85	CRO	CNP3	0		
0 945	RT	343.	.		.			ES	.	0 1438	21	09	85	CRO	CNP3	0		
0 88:	RT	195.	.		.			ES	.		20	09	85	CRO	CNP3	0		
01008	RT	349.	.		.			ES	.	0 1727	24	09	85	CRO	CNP3	0		
0 921	RT	484.	.		.			ES	.	0 1417	20	09	85	CRO	CNP3	0		
0 983	RT	358.	.		.			ES	.	0 1710	24	09	85	CRO	CNP3	0		
0 869	RT	299.	.		.			ES	.		20	09	85	CRO	CNP3	0		
0 991	RT	216.	.		.			ES	.		24	09	85	CRO	CNP3	0		
0 908	RT	403.	.		.			ES	.	0 1407	20	09	85	CRO	CNP3	0		
0 931	RT	262.	.		.			ES	.	0 1426	21	09	85	CRO	CNP3	0		
0 887	RT	227.	.		.			ES	.		20	09	85	CRO	CNP3	0		
01013	RT	304.	.		.			ES	.	0 1730	24	09	85	CRO	CNP3	0		
0 911	RT	285.	.		.			ES	.	0 1410	20	09	85	CRO	CNP3	0		
0 961	RT	340.	.		.			ES	.	0 1449	21	09	85	CRO	CNP3	0		
0 863	RT	493.	.		.			ES	.		20	09	85	CRO	CNP3	0		
0 999	RT	247.	.		.			ES	.	0 1720	24	09	85	CRO	CNP3	0		
0 893	RT	240.	.		.			ES	.		20	09	85	CRO	CNP3	0		
0 951	RT	131.	.		.			ES	.		21	09	85	CRO	CNP3	0		
0 879	RT	342.	.		.			ES	.		20	09	85	CRO	CNP3	0		
01007	RT	296.	.		.			ES	.	0 1725	24	09	85	CRO	CNP3	0		
0 919	RT	225.	.		.			ES	.		20	09	85	CRO	CNP3	0		
0 975	RT	243.	.		.			ES	.	0 1708	21	09	85	CRO	CNP3	0		
0 875	RT	446.	.		.			ES	.		20	09	85	CRO	CNP3	0		
0 995	RT	260.	.		.			ES	.	0 1717	24	09	85	CRO	CNP3	0		
0 903	RT	361.	.		.			ES	.	0 1404	20	09	85	CRO	CNP3	0		
0 940	RT	171.	.		.			ES	.		21	09	85	CRO	CNP3	0		
0 891	RT	218.	.		.			ES	.		20	09	85	CRO	CNP3	0		
01016	RT	235.	.		.			ES	.	0 1733	24	09	85	CRO	CNP3	0		
0 915	RT	371.	.		.			ES	.	0 1413	20	09	85	CRO	CNP3	0		
0 965	RT	231.	.		.			ES	.	0 1702	21	09	85	CRO	CNP3	0		
0 857	RT	333.	.		.			ES	.		20	09	85	CRO	CNP3	0		
01003	RT	208.	.		.			ES	.		24	09	85	CRO	CNP3	0		
0 897	RT	191.	.		.			ES	.		20	09	85	CRO	CNP3	0		END RUN # 1
0 942	RT	298.	.		.			ES	.	0 1436	21	09	85	CRO	CNP3	0		
0 882	RT	197.	.		.			ES	.		20	09	85	CRO	CNP3	0		
01011	RT	464.	.		.			ES	.	0 1728	24	09	85	CRO	CNP3	0		
0 923	RT	421.	.	1F	.			ES	.		20	09	85	CRO	CNP3	1		ST. FULL SNAILS
0 967	RT	268.	.		.			ES	.	0 1714	24	09	85	CRO	CNP3	0		
0 872	RT	265.	.		.			ES	.		20	09	85	CRO	CNP3	0		
0 985	RT	182.	.		.			ES	.		24	09	85	CRO	CNP3	0		
0 902	RT	407.	.		.			ES	.	0 1403	20	09	85	CRO	CNP3	0		
0 925	RT	272.	.		.			ES	.	0 1420	20	09	85	CRO	CNP3	0		
0 888	RT	240.	.		.			ES	.		20	09	85	CRO	CNP3	0		
01006	RT	327.	.		.			ES	.	0 1724	24	09	85	CRO	CNP3	0		
0 910	RT	374.	.		.			ES	.	0 1409	20	09	85	CRO	CNP3	0		
0 959	RT	376.	.		.			ES	.	0 1447	21	09	85	CRO	CNP3	0		
0 862	RT	86.	.		.	0	LF	ES	.		20	09	85	CRO	CNP3	0		
0 998	RT	214.	.		.			ES	.		24	09	85	CRO	CNP3	0		
0 896	RT	224.	.		.			ES	.		20	09	85	CRO	CNP3	0		
0 953	RT	391.	.		.			ES	.	0 1444	21	09	85	CRO	CNP3	0		
0 878	RT	336.	.		.			ES	.	0 1502	20	09	85	CRO	CNP3	2		
01010	RT	219.	.		.			ES	.		24	09	85	CRO	CNP3	0		
0 918	RT	368.	.		.			ES	.	0 1415	20	09	85	CRO	CNP3	0		
0 974	RT	253.	.		.			ES	.	0 1707	21	09	85	CRO	CNP3	0		
0 874	RT	445.	.		.			ES	.		20	09	85	CRO	CNP3	0		
0 994	RT	261.	.		.			ES	.	0 1716	24	09	85	CRO	CNP3	0		
0 904	RT	219.	.		.			ES	.		20	09	85	CRO	CNP3	0		
0 932	RT	283.	.		.			ES	.	0 1427	21	09	85	CRO	CNP3	0		
0 880	RT	208.	.		.			ES	.		20	09	85	CRO	CNP3	0		
01005	RT	336.	.		.			ES	.	0 1726	24	09	85	CRO	CNP3	0		
0 914	RT	340.	.		.			ES	.	0 1412	20	09	85	CRO	CNP3	0		
0 971	RT	306.	.		.			ES	.	0 1706	21	09	85	CRO	CNP3	0		
0 886	RT	272.	.		.			ES	.		20	09	85	CRO	CNP3	0		
01002	RT	211.	.		.			ES	.		24	09	85	CRO	CNP3	0		
0 900	RT	215.	.		.			ES	.		20	09	85	CRO	CNP3	0		
0 948	RT	227.	.		.			ES	.	0 1441	21	09	85	CRO	CNP3	0		
0 870	RT	298.	.		.			ES	.		20	09	85	CRO	CNP3	0		
01012	RT	446.	.		.			ES	.	0 1729	24	09	85	CRO	CNP3	0		
0 922	RT	227.	.		.			ES	.	0 1418	20	09	85	CRO	CNP3	0		
0 982	RT	391.	.		.			ES	.	0 1709	24	09	85	CRO	CNP3	0		
0 884	RT	325.	.		.			ES	.		20	09	85	CRO	CNP3	0		
0 992	RT	233.	.		.			ES	.	0 1715	24	09	85	CRO	CNP3	0		
0 912	RT	263.	.		.			ES	.	0 1411	20	09	85	CRO	CNP3	0		
0 928	RT	281.	.		.			ES	.	0 1423	21	09	85	CRO	CNP3	0		
0 876	RT	351.	.		.			ES	.		20	09	85	CRO	CNP3	0		
01000	RT	242.	.		.			ES	.	0 1721	24	09	85	CRO	CNP3	0		
0 920	RT	341.	.		.			ES	.	0 1416	20	09	85	CRO	CNP3	0		
0 964	RT	213.	.		.			ES	.		21	09	85	CRO	CNP3	0		
0 868	RT	283.	.		.			ES	.		20	09	85	CRO	CNP3	0		
0 996	RT	275.	.		.			ES	.	0 1718	24	09	85	CRO	CNP3	0		
0 916	RT	332.	.		.			ES	.	0 1414	20	09	85	CRO	CNP3	0		
0 952	RT	210.	.		.			ES	.		21	09	85	CRO	CNP3	0		
0 924	RT	291.	.		.			ES	.	0 1419	20	09	85	CRO	CNP3	0		
01004	RT	274.	.		.			ES	.	0 1722	24	09	85	CRO	CNP3	0		
0 976	RT	92.	.		.	0	LF	ES	.		21	09	85	CRO	CNP3	0		END RUN # 3
0 962	RT	175.	.		.			ES	.		21	09	85	CRO	CNP3	0		
0 988	RT	390.	.		.			ES	.	0 1703	21	09	85	CRO	CNP3	0		
0 956	RT	134.	.		.			ES	.		21	09	85	CRO	CNP3	0		
0 986	RT	474.	.		.			ES	.	0 1713	24	09	85	CRO	CNP3	0		
0 946	RT	222.	.		.			ES	.	0 1439	21	09	85	CRO	CNP3	0		
0 958	RT	445.	.		.			ES	.	0 1446	21	09	85	CRO	CNP3	2		
0 944	RT	278.	.		.			ES	.	0 1437	21	09	85	CRO	CNP3	0		
0 984	RT	323.	.		.			ES	.	0 1711	24	09	85	CRO	CNP3	0		
0 970	RT	343.	.		.			ES	.	0 1705	21	09	85	CRO	CNP3	0		
0 988	RT	205.	.		.			ES	.		24	09	85	CRO	CNP3	0		
0 962	RT	265.	.		.			ES	.	0 1450	21	09	85	CRO	CNP3	0		
0 955	RT	186.	.		.			ES	.		21	09	85	CRO	CNP3	0		
0 960	RT	338.	.		.			ES	.	0 1448	21	09	85	CRO	CNP3	0		
0 972	RT	215.	.		.			ES	.		21	09	85	CRO	CNP3	0		
0 361	BNT	448.	1180.	14	.	3	SC	ES	.		18	08	85	CRO	ES 1	0		
01179	BNT	247.	200.		.	1	SC	ES	.	0 7920	04	10	85	CRO	ES 1	0		

RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY LOCATION AND SITE
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SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE			LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
											DAY	MO	YR					
01200	BNT	258.	275.		.			ES	.	0 7836	04	10	85	CRD	ES 1	0		
01208	DV	459.	.		.			ES	.	0 7839	04	10	85	CRD	ES 1	0		
01202	DV	202.	80.		.			ES	.		04	10	85	CRD	ES 1	0		
0 413	MW	142.	.		.	1	SC	ES	.		19	08	85	CRD	ES 1	0		
0 242	MW	214.	140.		.			ES	.		19	08	85	CRD	ES 1	0		
0 285	MW	201.	.		.			ES	.		19	08	85	CRD	ES 1	0		
01148	MW	286.	280.	17	.			ES	.	0 7805	04	10	85	CRD	ES 1	0		
0 417	MW	150.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 253	MW	252.	230.		.			ES	.	0 1484	19	08	85	CRD	ES 1	0		
0 381	MW	188.	.		.			ES	.		19	08	85	CRD	ES 1	0		
01188	MW	240.	190.		.			ES	.		04	10	85	CRD	ES 1	0		
0 415	MW	148.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 245	MW	200.	100.		.			ES	.		19	08	85	CRD	ES 1	0		
0 317	MW	383.	800.		.	7	SC	ES	.	0 1473	19	08	85	CRD	ES 1	0		
01150	MW	144.	45.		.			ES	.		04	10	85	CRD	ES 1	0		
0 414	MW	151	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 277	MW	228.	180.		.			ES	.		19	08	85	CRD	ES 1	0		
0 385	MW	219.	150.		.	2	SC	ES	.		19	08	85	CRD	ES 1	0		
01169	MW	148.	.		.			ES	.		04	10	85	CRD	ES 1	0		
0 418	MW	150.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 243	MW	213.	140.		.			ES	.		19	08	85	CRD	ES 1	0		
0 301	MW	209.	.		.			ES	.		19	08	85	CRD	ES 1	0		
01165	MW	346.	580.	17	.			ES	.	0 7313	04	10	85	CRD	ES 1	0		
0 397	MW	338.	520.	6	.	5	SC	ES	.		19	08	85	CRD	ES 1	1		
0 261	MW	152.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 333	MW	327.	450.	16	.	4	SC	ES	.		19	08	85	CRD	ES 1	1		
01157	MW	212.	130.		.			ES	.		04	10	85	CRD	ES 1	0		
0 349	MW	207.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 249	MW	206.	120.		.			ES	.		19	08	85	CRD	ES 1	0		
0 293	MW	180.	.		.			ES	.		19	08	85	CRD	ES 1	0		
01173	MW	238.	170.	7	.			ES	.		04	10	85	CRD	ES 1	0		
0 389	MW	354.	500.		.	6	SC	ES	.	0 1490	19	08	85	CRD	ES 1	0		
0 281	MW	208.	100.		.			ES	.		19	08	85	CRD	ES 1	0		
0 325	MW	179.	.		.			ES	.		19	08	85	CRD	ES 1	0		
01153	MW	281.	230.	18	.			ES	.		04	10	85	CRD	ES 1	0		
0 380	MW	205.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 244	MW	280.	240.		.			ES	.	0 1482	19	08	85	CRD	ES 1	0		
0 309	MW	211.	130.	11	.	2	SC	ES	.		19	08	85	CRD	ES 1	0		
01163	MW	289.	280.	7	.			ES	.	0 7914	04	10	85	CRD	ES 1	0		
0 405	MW	225.	.		.		SC	ES	.		19	08	85	CRD	ES 1	0		
0 257	MW	173.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 341	MW	181.	.		.			ES	.		19	08	85	CRD	ES 1	0		
01164	MW	452.	1300.	17	.	10	SC	ES	.	0 7912	04	10	85	CRD	ES 1	0		
0 357	MW	140.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 247	MW	171.	70.		.			ES	.		19	08	85	CRD	ES 1	0		
0 289	MW	212.	140.		.			ES	.		19	08	85	CRD	ES 1	0		
01180	MW	239.	180.	7	.			ES	.		04	10	85	CRD	ES 1	0		
0 385	MW	257.	180.		.			ES	.	0 1486	19	08	85	CRD	ES 1	0		
0 279	MW	221.	180.		.			ES	.		19	08	85	CRD	ES 1	0		
0 322	MW	150.	.		.			ES	.		19	08	85	CRD	ES 1	0		
01151	MW	268.	260.	7	.			ES	.		04	10	85	CRD	ES 1	0		
0 370	MW	249.	220	18	.		SC	ES	.		19	08	85	CRD	ES 1	1		
0 251	MW	212.	110.		.			ES	.		19	08	85	CRD	ES 1	0		
0 307	MW	138.	.		.			ES	.		19	08	85	CRD	ES 1	0		
01167	MW	274.	300.	17	.			ES	.		04	10	85	CRD	ES 1	0		
0 402	MW	209.	130.		.	2	SC	ES	.		19	08	85	CRD	ES 1	0		
0 265	MW	204.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 337	MW	158.	.		.			ES	.		19	08	85	CRD	ES 1	0		
01155	MW	285.	210.		.			ES	.		04	10	85	CRD	ES 1	0		
0 353	MW	143.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 246	MW	180.	80.		.			ES	.		19	08	85	CRD	ES 1	0		
0 297	MW	193.	120.		.			ES	.		19	08	85	CRD	ES 1	0		
01174	MW	227.	175.	7	.			ES	.		04	10	85	CRD	ES 1	0		
0 393	MW	250.	200.		.	3	SC	ES	.	0 1494	19	08	85	CRD	ES 1	0		
0 283	MW	203.	90.		.			ES	.		19	08	85	CRD	ES 1	0		
0 329	MW	200.	.		.			ES	.		19	08	85	CRD	ES 1	0		
01152	MW	301.	390.	7	.			ES	.		04	10	85	CRD	ES 1	0		
0 383	MW	310.	400.		.	6	SC	ES	.	0 1479	19	08	85	CRD	ES 1	0		
0 250	MW	151.	30.		.			ES	.		19	08	85	CRD	ES 1	0		
0 313	MW	150.	40.		.		SC	ES	.		19	08	85	CRD	ES 1	0		
01171	MW	285.	270.	7	.			ES	.	0 7815	04	10	85	CRD	ES 1	0		
0 409	MW	149.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 255	MW	208.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 345	MW	180.	.		.			ES	.		19	08	85	CRD	ES 1	0		
01154	MW	244.	200.		.			ES	.		04	10	85	CRD	ES 1	0		
0 351	MW	173.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 248	MW	248.	200.		.			ES	.	0 1483	19	08	85	CRD	ES 1	0		
0 287	MW	220.	150.		.			ES	.		19	08	85	CRD	ES 1	0		
01166	MW	238.	.	7	.			ES	.		04	10	85	CRD	ES 1	0		
0 383	MW	151.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 278	MW	225.	180.		.			ES	.		19	08	85	CRD	ES 1	0		
0 318	MW	338.	500.		.	5	SC	ES	.	0 1474	19	08	85	CRD	ES 1	0		
01156	MW	228.	175.		.			ES	.		04	10	85	CRD	ES 1	0		
0 359	MW	146.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 252	MW	122.	20.		.			ES	.		19	08	85	CRD	ES 1	0		
0 303	MW	215.	.		.			ES	.		19	08	85	CRD	ES 1	0		
01170	MW	253.	140.	7	.			ES	.		04	10	85	CRD	ES 1	0		
0 399	MW	238.	260	18	.		SC	ES	.		19	08	85	CRD	ES 1	1		
0 263	MW	231.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 335	MW	177.	.		.			ES	.		19	08	85	CRD	ES 1	0		
01168	MW	239.	170.	8	.			ES	.		04	10	85	CRD	ES 1	0		
0 355	MW	131.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 282	MW	210.	100.		.			ES	.		19	08	85	CRD	ES 1	0		
0 285	MW	171.	.		.			ES	.		19	08	85	CRD	ES 1	0		
01172	MW	242.	200.	7	.			ES	.		04	10	85	CRD	ES 1	0		
0 391	MW	311.	490		.	4	SC	ES	.	0 1492	19	08	85	CRD	ES 1	0		
0 259	MW	208.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 327	MW	188.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 280	MW	226.	170.		.			ES	.		19	08	85	CRD	ES 1	0		
0 362	MW	385.	880.		.	6	SC	ES	.	0 1478	19	08	85	CRD	ES 1	0		
0 267	MW	158.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 311	MW	175.	70.	1	.	1	SC	ES	.		19	08	85	CRD	ES 1	0		
0 284	MW	213.	120.		.			ES	.		19	08	85	CRD	ES 1	0		
0 407	MW	149.	50.		.	1	SC	ES	.		19	08	85	CRD	ES 1	0		
0 254	MW	240.	180.		.			ES	.	0 1485	19	08	85	CRD	ES 1	0		
0 343	MW	142.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 292	MW	171.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 350	MW	185.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 258	MW	220.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 291	MW	182.	100.		.			ES	.		19	08	85	CRD	ES 1	0		
0 288	MW	221.	.		.			ES	.		19	08	85	CRD	ES 1	0		
0 387	MW	278.	380.		.	3	SC	ES	.	0 1487	19	08	85	CRD	ES 1	0		

RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY LOCATION AND SITE

SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY MO YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
0 256	MW	244.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 323	MW	151.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 264	MW	199.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 358	MW	145.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 280	MW	163.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 308	MW	250.	210.	16	.		SC	ES	.		19 08 85	CRO	ES 1	0		
0 288	MW	183.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 403	MW	138.	30.		.	1	SC	ES	.		19 08 85	CRO	ES 1	0		
0 339	MW	140.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 354	MW	152.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 289	MW	211.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 395	MW	273.	260.		.	3	SC	ES	.	0 1496	19 08 85	CRO	ES 1	0		
0 331	MW	155.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 352	MW	167.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 315	MW	141.	25.		.		SC	ES	.		19 08 85	CRO	ES 1	0		
0 411	MW	151.	.		.	1	SC	ES	.		19 08 85	CRO	ES 1	0		
0 347	MW	203.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 358	MW	152.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 288	MW	216.	140.		.			ES	.		19 08 85	CRO	ES 1	0		
0 382	MW	185.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 324	MW	214.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 398	MW	275.	330.	15	.	3	SC	ES	.		19 08 85	CRO	ES 1	1		
0 302	MW	218.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 394	MW	270.	250.		.	3	SC	ES	.	0 1495	19 08 85	CRO	ES 1	0		
0 334	MW	183.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 406	MW	185.	60.		.		SC	ES	.		19 08 85	CRO	ES 1	0		
0 294	MW	210.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 386	MW	280.	280.		.			ES	.	0 1458	19 08 85	CRO	ES 1	0		
0 326	MW	151.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 404	MW	141.	35.		.			ES	.		19 08 85	CRO	ES 1	0		
0 310	MW	204.	110.	11	.	2	SC	ES	.		19 08 85	CRO	ES 1	0		
0 396	MW	239.	180.		.	3	SC	ES	.	0 1497	19 08 85	CRO	ES 1	0		
0 342	MW	206.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 410	MW	153.	30.		.			ES	.		19 08 85	CRO	ES 1	0		
0 290	MW	184.	100.		.			ES	.		19 08 85	CRO	ES 1	0		
0 384	MW	151.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 330	MW	148.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 400	MW	222.	140.	1	.	2	SC	ES	.		19 08 85	CRO	ES 1	1		
0 304	MW	144.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 388	MW	322.	390.		.	5	SC	ES	.	0 1489	19 08 85	CRO	ES 1	0		
0 338	MW	149.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 408	MW	148.	.		.	1	SC	ES	.		19 08 85	CRO	ES 1	0		
0 298	MW	160.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 412	MW	138.	30.		.			ES	.		19 08 85	CRO	ES 1	0		
0 328	MW	207.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 314	MW	148.	40.		.		SC	ES	.		19 08 85	CRO	ES 1	0		
0 346	MW	153.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 288	MW	204.	110.		.			ES	.		19 08 85	CRO	ES 1	0		
0 332	MW	155.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 312	MW	158.	40.	99	.	1	SC	ES	.		19 08 85	CRO	ES 1	0		
0 336	MW	159.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 296	MW	209.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 344	MW	151.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 300	MW	202.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 340	MW	185.	.		.			ES	.		19 08 85	CRO	ES 1	0		
0 348	MW	162.	.		.			ES	.		19 08 85	CRO	ES 1	0		
01205	RT	320.	.		.			ES	.	0 7941	04 10 85	CRO	ES 1	0		
0 419	RT	290.	395.	11	.	2	SO	ES	.		19 08 85	CRO	ES 1	1		
0 268	RT	282.	300.		.		SC	ES	.	0 1465	19 08 85	CRO	ES 1	0		
0 373	RT	344.	540.		.	3	SC	ES	.	0 1484	19 08 85	CRO	ES 1	0		
01145	RT	495.	1850.		.	4	SC	ES	.	0 7902	04 10 85	CRO	ES 1	0		
0 418	RT	239.	195.	11	.		SO	ES	.		19 08 85	CRO	ES 1	1		
0 273	RT	359.	600.		.		SC	ES	.	0 1488	19 08 85	CRO	ES 1	0		
0 305	RT	205.	100.		.		SC	ES	.		19 08 85	CRO	ES 1	0		
01181	RT	290.	355.		.			ES	.	0 7921	04 10 85	CRO	ES 1	0		
0 420	RT	210.	140.	1	.		SO	ES	.		19 08 85	CRO	ES 1	1		
0 271	RT	202.	140.		.		SC	ES	.		19 08 85	CRO	ES 1	0		
0 390	RT	312.	490.		.	2	SC	ES	.	0 1491	19 08 85	CRO	ES 1	0		
01159	RT	554.	2450.		.			ES	.	0 7907	04 10 85	CRO	ES 1	0		
0 319	RT	238.	.		.		SC	ES	.	0 1475	19 08 85	CRO	ES 1	0		
0 275	RT	241.	220.		.	1	SC	ES	.	0 1471	19 08 85	CRO	ES 1	0		
0 364	RT	368.	760.		.	3	SC	ES	.	0 1480	19 08 85	CRO	ES 1	0		
01197	RT	329.	480.		.			ES	.	0 7933	04 10 85	CRO	ES 1	0		
0 292	RT	150.	50.		.		SC	ES	.		19 08 85	CRO	ES 1	0		
0 270	RT	281.	290.		.		SC	ES	.	0 1487	19 08 85	CRO	ES 1	0		
0 401	RT	282.	310.	11	.	2	SC	ES	.		19 08 85	CRO	ES 1	1		
01147	RT	352.	.		.			ES	.	0 7904	04 10 85	CRO	ES 1	0		
0 321	RT	306.	440.		.	2	SC	ES	.	0 1477	19 08 85	CRO	ES 1	0		
0 274	RT	277.	325.		.		SC	ES	.	0 1469	19 08 85	CRO	ES 1	0		
0 387	RT	185.	60.		.		SC	ES	.		19 08 85	CRO	ES 1	0		
01193	RT	255.	220.		.			ES	.	0 7929	04 10 85	CRO	ES 1	0		
0 316	RT	153.	50.		.	1	SO	ES	.		19 08 85	CRO	ES 1	1		
0 272	RT	140.	40.		.	1	SC	ES	.		19 08 85	CRO	ES 1	0		
0 392	RT	260.	230.		.		SC	ES	.	0 1493	19 08 85	CRO	ES 1	0		
01177	RT	445.	1460.		.			ES	.	0 7918	04 10 85	CRO	ES 1	0		
0 320	RT	311.	440.		.	2	SC	ES	.	0 1476	19 08 85	CRO	ES 1	0		
0 276	RT	355.	620.		.	3	SC	ES	.	0 1470	19 08 85	CRO	ES 1	0		
0 380	RT	17[illegible].	.		.	1	SO	ES	.		19 08 85	CRO	ES 1	1		
01203	RT	488.	.		.			ES	.	0 7936	04 10 85	CRO	ES 1	0		
0 306	RT	223.	.		.	1	SC	ES	.	0 1472	19 08 85	CRO	ES 1	0		
01146	RT	353.	700.		.	2	SC	ES	.	0 7903	04 10 85	CRO	ES 1	0		
0 377	RT	183.	80.		.		SC	ES	.		19 08 85	CRO	ES 1	0		
01187	RT	268.	220.		.			ES	.	0 7924	04 10 85	CRO	ES 1	0		
0 371	RT	410.	840.		.		SC	ES	.	0 1482	19 08 85	CRO	ES 1	0		
01149	RT	147.	40.		.	1	SC	ES	.		04 10 85	CRO	ES 1	0		
0 375	RT	150.	50.		.	1	SC	ES	.		19 08 85	CRO	ES 1	0		
01189	RT	259.	230.		.			ES	.	0 7935	04 10 85	CRO	ES 1	0		
0 366	RT	203.	110.		.		SC	ES	.		19 08 85	CRO	ES 1	0		
01175	RT	340.	480.		.			ES	.	0 7916	04 10 85	CRO	ES 1	0		
0 379	RT	206.	100.		.		SC	ES	.		19 08 85	CRO	ES 1	0		
01191	RT	344.	660.		.			ES	.	0 7927	04 10 85	CRO	ES 1	0		
0 369	RT	278.	220.		.	2	SC	ES	.	0 1481	19 08 85	CRO	ES 1	0		
01161	RT	410.	980.		.			ES	.	0 7909	04 10 85	CRO	ES 1	0		
0 374	RT	268.	280.		.		SC	ES	.	0 1485	19 08 85	CRO	ES 1	0		
01201	RT	257.	200.		.			ES	.	0 7937	04 10 85	CRO	ES 1	0		
0 388	RT	229.	80.		.	1	SC	ES	.		19 08 85	CRO	ES 1	0		
01178	RT	284.	280.		.			ES	.	0 7919	04 10 85	CRO	ES 1	0		
0 378	RT	163.	35.		.	1	SC	ES	.		19 08 85	CRO	ES 1	0		
01183	RT	272.	240.		.			ES	.	0 7922	04 10 85	CRO	ES 1	0		
0 372	RT	442.	1400.		.	4	SC	ES	.	0 1483	19 08 85	CRO	ES 1	0		ST - 2LND
01155	RT	553.	2360.		.			ES	.	0 7906	04 10 85	CRO	ES 1	0		
0 379	RT	200.	100.		.		SC	ES	.		19 08 85	CRO	ES 1	0		

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                           RL&L ENVIRONMENTAL SERVICES LTD.
                     FISHERIES DATA - PRINT OUT BY LOCATION AND SITE
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SAMPLE SP.  LENGTH  WEIGHT  SEX- GONAD AGE AGE  CAPT MESH   TAG       DATE      LOCATION  SITE CAPT PRES      COMMENTS
  NO.        (MM)    (G)    MAT. WT(G)     METH METH (CM)   NO.   DAY MO YR                    CODE CODE
.............................................................................................................................
01198 RT    254.    200.         .          ES     .   0 7934   04 10 85   CRD      ES 1   0
01176 RT    330.    550.         .          ES     .   0 7917   04 10 85   CRD      ES 1   0
01195 RT    347.    500.         .          ES     .   0 7931   04 10 85   CRD      ES 1   0
01163 RT    222.    180.         .          ES     .   0 7911   04 10 85   CRD      ES 1   0
01204 RT    488.       .         .          ES     .   0 7940   04 10 85   CRD      ES 1   0
01160 RT    344.    550.         .          ES     .   0 7908   04 10 85   CRD      ES 1   0
01185 RT    211.    110.         .          ES     .            04 10 85   CRD      ES 1   0
01162 RT    288.    390.         .          ES     .   0 7910   04 10 85   CRD      ES 1   0
01190 RT    249.    215.         .          ES     .   0 7926   04 10 85   CRD      ES 1   0
01182 RT    205.     90.         .          ES     .            04 10 85   CRD      ES 1   0
01194 RT    250.    280.         .          ES     .   0 7930   04 10 85   CRD      ES 1   0
01188 RT    230.    130.         .          ES     .   0 7925   04 10 85   CRD      ES 1   0
01192 RT    363.    750.         .          ES     .   0 7928   04 10 85   CRD      ES 1   0
01184 RT    263.    250.         .          ES     .   0 7923   04 10 85   CRD      ES 1   0
01198 RT    248.    190.         .          ES     .   0 7932   04 10 85   CRD      ES 1   0
0 709 BNT   223.    145.         .   1 SC   ES     .   0 1609   22 08 85   CRD      ES 2   0
0 233 BNT   356.    700.         .   2 SC   ES     .   0 1455   19 08 85   CRD      ES 2   0
0 733 BNT   224.    160.         .   1 SC   ES     .   0 1622   22 08 85   CRD      ES 2   0
0 807 BNT   343.    640.         .   2 SC   ES     .   0 1676   22 08 85   CRD      ES 2   0
0 710 BNT   216.    140.         .   1 SC   ES     .            22 08 85   CRD      ES 2   0
0 237 BNT   542.   2440.         .   5 SC   ES     .   0 1459   19 08 85   CRD      ES 2   0
0 775 BNT   235.       .         .   1 SC   ES     .   0 1850   22 08 85   CRD      ES 2   0
01095 BNT   111.       .         .   0 SC   ES     .            04 10 85   CRD      ES 2   0
0 742 BNT   372.    850.         .   2 SC   ES     .   0 1627   22 08 85   CRD      ES 2   0
0 234 BNT   457.   1360.         .   3 SC   ES     .   0 1456   19 08 85   CRD      ES 2   0
0 789 BNT   439.   1255.         .   3 SC   ES     .   0 1660   22 08 85   CRD      ES 2   0
0 845 BNT   363.    630.   11    .   2 SO   ES     .            22 08 85   CRD      ES 2   1
0 776 BNT   280.       .         .   1 SC   ES     .   0 1851   22 08 85   CRD      ES 2   0
01126 BNT   485.   1240.   10    .   3 SC   ES     .   0 1862   04 10 85   CRD      ES 2   2
0 791 BNT   455.   1270.         .   3 SC   ES     .   0 1862   22 08 85   CRD      ES 2   0
0 815 BNT   250.       .         .   1 SC   ES     .   0 1884   22 08 85   CRD      ES 2   0
0 790 BNT   460.   1560.         .          ES     .   0 1861   22 08 85   CRD      ES 2   0        SCALES EMBEDDED
01097 BNT   318.    490.   10    .   1 SC   ES     .   0 7368   04 10 85   CRD      ES 2   0
0 827 BNT   342.    580.         .   4 SC   ES     .   0 1885   22 08 85   CRD      ES 2   0
01136 BNT   245.       .         .          ES     .   0 1424   04 10 85   CRD      ES 2   2
0 828 BNT   410.    880.         .          ES     .   0 1886   22 08 85   CRD      ES 2   0        SCALES EMBEDDED
01096 BNT   275.    310.   20    .   1 SC   ES     .   0 7967   04 10 85   CRD      ES 2   0
01127 BNT   273.    300.         .          ES     .   0 7992   04 10 85   CRD      ES 2   0
01141 BNT   266.    230          .   1 SC   ES     .   0 8000   04 10 85   CRD      ES 2   0
01128 BNT   391     980.    6    .   2 SO   ES     .            04 10 85   CRD      ES 2   1        ST-PLECOPS; 1LND
01139 BNT   367.    780.   10    .          ES     .   0 1455   04 10 85   CRD      ES 2   2
01142 BNT   255.    260.         .   1 SC   ES     .   0 7901   04 10 85   CRD      ES 2   0
01140 BNT   261.    275.         .   1 SC   ES     .   0 7999   04 10 85   CRD      ES 2   0
01108 DV    196.     80.         .   2 SC   ES     .            04 10 85   CRD      ES 2   0
0 700 MW    289.    350.         .          ES     .   0 1600   22 08 85   CRD      ES 2   0
0 241 MW    192.     70.         .          ES     .            19 08 85   CRD      ES 2   0
0 749 MW    285.       .         .          ES     .   0 1834   22 08 85   CRD      ES 2   0
0 838 MW    268.       .         .          ES     .   0 1895   22 08 85   CRD      ES 2   0
0 717 MW    234.    170.         .          ES     .            22 08 85   CRD      ES 2   0
0 230 MW    265.    260.         .          ES     .   0 1456   19 08 85   CRD      ES 2   0
0 765 MW    225.       .         .          ES     .            22 08 85   CRD      ES 2   0
01129 MW    312.    390.   17    .          ES     .   0 7993   04 10 85   CRD      ES 2   0
0 708 MW    279.    300.         .          ES     .   0 1808   22 08 85   CRD      ES 2   0
0 240 MW    194.     70.         .          ES     .            19 08 85   CRD      ES 2   0
0 737 MW     92.       .         .   0 LF   ES     .            22 08 85   CRD      ES 2   0
0 759 MW    364.       .         .          ES     .   0 1889   22 08 85   CRD      ES 2   0
0 721 MW    234.    145.         .          ES     .   0 1814   22 08 85   CRD      ES 2   0
0 231 MW    160.     50.         .          ES     .            19 08 85   CRD      ES 2   0
0 782 MW    250.       .         .          ES     .   0 1854   22 08 85   CRD      ES 2   0
01075 MW    308.    350.   17    .          ES     .   0 7958   04 10 85   CRD      ES 2   0
0 713 MW    328.    430.         .          ES     .   0 1610   22 08 85   CRD      ES 2   0
0 232 MW    190.     80.         .          ES     .            19 08 85   CRD      ES 2   0
0 757 MW    240.       .         .          ES     .   0 1842   22 08 85   CRD      ES 2   0
0 849 MW    214.       .         .          ES     .            22 08 85   CRD      ES 2   0
0 719 MW    269.    240.         .          ES     .   0 1612   22 08 85   CRD      ES 2   0
01143 MW    259.    280.         .          ES     .            04 10 85   CRD      ES 2   0
0 767 MW    173.       .         .          ES     .            22 08 85   CRD      ES 2   0
0 817 MW     96.       .         .   0 LF   ES     .            22 08 85   CRD      ES 2   0
0 715 MW    219.    140.         .          ES     .            22 08 85   CRD      ES 2   0
01077 MW    310.    300.    7    .          ES     .   0 7980   04 10 85   CRD      ES 2   0
0 745 MW    348.       .         .          ES     .   0 1830   22 08 85   CRD      ES 2   0
0 842 MW    334.       .         .          ES     .   0 1700   22 08 85   CRD      ES 2   0
0 723 MW    203.     90.         .          ES     .            22 08 85   CRD      ES 2   0
01125 MW    306.    330.    8    .          ES     .   0 7991   04 10 85   CRD      ES 2   0
0 785 MW    337.       .         .          ES     .   0 1857   22 08 85   CRD      ES 2   0
0 805 MW    262.    255.         .          ES     .   0 1875   22 08 85   CRD      ES 2   0
0 714 MW    250.    240.         .          ES     .   0 1611   22 08 85   CRD      ES 2   0
01076 MW    295.    350.    8    .          ES     .   0 7959   04 10 85   CRD      ES 2   0
0 753 MW    253.       .         .          ES     .   0 1838   22 08 85   CRD      ES 2   0
0 847 MW    276.       .         .          ES     .            22 08 85   CRD      ES 2   0
0 718 MW    219.    160.         .          ES     .            22 08 85   CRD      ES 2   0
01133 MW    326.    440.    7    .          ES     .   0 7997   04 10 85   CRD      ES 2   0
0 786 MW    183.       .         .          ES     .            22 08 85   CRD      ES 2   0
0 821 MW    373.       .         .          ES     .            22 08 85   CRD      ES 2   0
0 716 MW    226.    150.         .          ES     .            22 08 85   CRD      ES 2   0
01081 MW    235.    160.         .          ES     .            04 10 85   CRD      ES 2   0
0 735 MW     90.       .         .   0 LF   ES     .            22 08 85   CRD      ES 2   0
0 839 MW    337.       .         .          ES     .   0 1696   22 08 85   CRD      ES 2   0
0 722 MW    175.     50.         .          ES     .            22 08 85   CRD      ES 2   0
01131 MW    265.    280.    7    .          ES     .   0 7995   04 10 85   CRD      ES 2   0
0 783 MW    326.       .         .          ES     .   0 1855   22 08 85   CRD      ES 2   0
0 801 MW    208.       .         .          ES     .   0 1871   22 08 85   CRD      ES 2   0
0 720 MW    309.    400.         .          ES     .   0 1613   22 08 85   CRD      ES 2   0
01079 MW    275.    290.    7    .     SC   ES     .            04 10 85   CRD      ES 2   1
0 761 MW    207.       .         .          ES     .            22 08 85   CRD      ES 2   0
0 850 MW    134.       .         .          ES     .            22 08 85   CRD      ES 2   0
0 768 MW    146.       .         .          ES     .            22 08 85   CRD      ES 2   0
01144 MW    113.       .         .   0 LF   ES     .            04 10 85   CRD      ES 2   0
0 743 MW    234.       .         .          ES     .   0 1628   22 08 85   CRD      ES 2   0
0 819 MW     93.       .         .   0 LF   ES     .            22 08 85   CRD      ES 2   0
0 787 MW    231.       .         .          ES     .   0 1659   22 08 85   CRD      ES 2   0
01083 MW    241.    185.    7    .          ES     .            04 10 85   CRC      ES 2   1
0 751 MW    287.       .         .          ES     .   0 1636   22 08 85   CRD      ES 2   0
0 843 MW    140.       .         .          ES     .            22 08 85   CRD      ES 2   0
0 784 MW    253.       .         .          ES     .   0 1856   22 08 85   CRD      ES 2   0
01130 MW    392.    810.   17    .          ES     .   0 7994   04 10 85   CRD      ES 2   0
0 734 MW     83.       .         .   0 LF   ES     .            22 08 85   CRD      ES 2   0
0 806 MW    300.    350.         .          ES     .            22 08 85   CRD      ES 2   0
0 788 MW    290.       .         .          ES     .   0 1858   22 08 85   CRD      ES 2   0
01078 MW    283.    290.         .   4 SC   ES     .            04 10 85   CRD      ES 2   1
0 759 MW    219.       .         .          ES     .            22 08 85   CRD      ES 2   0
0 848 MW    183.       .         .          ES     .            22 08 85   CRD      ES 2   0
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RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY LOCATION AND SITE
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SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY	MO	YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
0 788	MW	191.	.		.			ES	.		22	08	85	CRO	ES 2	0		
01135	MW	248.	220.	17	.			ES	.		04	10	85	CRO	ES 2	0		
0 747	MW	328.	.		.			ES	.	0 1632	22	08	85	CRO	ES 2	0		
0 825	MW	367.	.		.			ES	.		22	08	85	CRO	ES 2	0		
0 755	MW	282.	.		.			ES	.	0 1640	22	08	85	CRO	ES 2	0		
01082	MW	260.	220.		.			ES	.		04	10	85	CRO	ES 2	0		
0 736	MW	95.	.		.	0	LF	ES	.		22	08	85	CRO	ES 2	0		
0 844	MW	272.	.		.			ES	.	1698	22	08	85	CRO	ES 2	0		
0 763	MW	218.	.		.			ES	.		22	08	85	CRO	ES 2	0		
01132	MW	304.	340.	7	.			ES	.	0 7998	04	10	85	CRO	ES 2	0		
0 744	MW	327.	.		.			ES	.	0 1629	22	08	85	CRO	ES 2	0		
0 800	MW	394.	770.		.			ES	.	0 1670	22	08	85	CRO	ES 2	0		
0 750	MW	280.	.		.			ES	.	0 1635	22	08	85	CRO	ES 2	0		
01080	MW	300.	290.		.	4	SC	ES	.		04	10	85	CRO	ES 2	1		
0 746	MW	337.	.		.			ES	.	0 1631	22	08	85	CRO	ES 2	0		
0 818	MW	94.	.		.	0	LF	ES	.		22	08	85	CRO	ES 2	0		
0 758	MW	234.	.		.			ES	.	0 1643	22	08	85	CRO	ES 2	0		
01134	MW	239.	180.	7	.			ES	.		04	10	85	CRO	ES 2	0		
0 748	MW	320.	.		.			ES	.	0 1633	22	08	85	CRO	ES 2	0		
0 803	MW	284.	305.		.			ES	.	0 1673	22	08	85	CRO	ES 2	0		
0 754	MW	261.	.		.			ES	.	0 1639	22	08	85	CRO	ES 2	0		
01084	MW	236.	175.		.			ES	.		04	10	85	CRO	ES 2	0		
0 762	MW	173.	.		.			ES	.		22	08	85	CRO	ES 2	0		
0 823	MW	318.	.		.			ES	.		22	08	85	CRO	ES 2	0		
0 752	MW	274.	.		.			ES	.	0 1637	22	08	85	CRO	ES 2	0		
01138	MW	252.	210.	17	.			ES	.		04	10	85	CRO	ES 2	0		
0 760	MW	220.	.		.			ES	.		22	08	85	CRO	ES 2	0		
0 802	MW	209.	.		.			ES	.	0 1672	22	08	85	CRO	ES 2	0		
0 756	MW	239.	.		.			ES	.	0 1641	22	08	85	CRO	ES 2	0		
0 826	MW	238.	.		.			ES	.		22	08	85	CRO	ES 2	0		
0 764	MW	194.	.		.			ES	.		22	08	85	CRO	ES 2	0		
0 804	MW	313.	410.		.			ES	.	0 1674	22	08	85	CRO	ES 2	0		
0 822	MW	306.	.		.			ES	.		22	08	85	CRO	ES 2	0		
0 824	MW	271.	.		.			ES	.		22	08	85	CRO	ES 2	0		
0 698	RT	426.	950.		.	4	SC	ES	.	0 1598	22	08	85	CRO	ES 2	0		
0 238	RT	454.	1500.		.	4	SC	ES	.	0 1460	19	08	85	CRO	ES 2	0		
0 777	RT	280.	.		.			ES	.	0 1652	22	08	85	CRO	ES 2	0		
01085	RT	137.	20.	99	.	1	SC	ES	.		04	10	85	CRO	ES 2	0		
0 701	RT	303.	390.		.	2	SC	ES	.	0 1601	22	08	85	CRO	ES 2	0		
0 235	RT	378.	700.		.	3	SC	ES	.	0 1457	19	08	85	CRO	ES 2	0		
0 739	RT	387.	900.		.	3	SC	ES	.	0 1024	22	08	85	CRO	ES 2	0		
0 846	RT	355.	700.	16	.	3	SD	ES	.		22	08	85	CRO	ES 2	1		
0 699	RT	298.	345.		.	2	SC	ES	.	0 1599	22	08	85	CRO	ES 2	0		
0 239	RT	275.	290.		.		SC	ES	.	0 1461	19	08	85	CRO	ES 2	0		
0 793	RT	317.	390.		.			ES	.	0 1664	22	08	85	CRO	ES 2	0		
01117	RT	314.	440.		.			ES	.	0 7984	04	10	85	CRO	ES 2	0		
0 725	RT	463.	.		.	4	SC	ES	.	0 1616	22	08	85	CRO	ES 2	0		
0 236	RT	338.	600.		.		SC	ES	.	0 1458	19	08	85	CRO	ES 2	0		
0 741	RT	325.	380.		.	2	SC	ES	.	0 1626	22	08	85	CRO	ES 2	0		
0 809	RT	395.	600.		.			ES	.	0 1678	22	08	85	CRO	ES 2	0		
0 711	RT	190.	85.		.	1	SC	ES	.		22	08	85	CRO	ES 2	0		
01071	RT	400.	950.		.	3	SC	ES	.	0 7954	04	10	85	CRO	ES 2	0		
0 769	RT	342.	580.		.	2	SC	ES	.	0 1644	22	08	85	CRO	ES 2	0		
0 829	RT	414.	920.		.			ES	.	0 1687	22	08	85	CRO	ES 2	0		
0 724	RT	262.	240.		.	2	SC	ES	.	0 1615	22	08	85	CRO	ES 2	0		
01137	RT	395.	960.		.			ES	.	0 7998	04	10	85	CRO	ES 2	0		
0 738	RT	315.	450.		.	2	SC	ES	.	0 1623	22	08	85	CRO	ES 2	0		
0 813	RT	294.	320.		.			ES	.	0 1682	22	08	85	CRO	ES 2	0		
0 705	RT	392.	770.		.	3	SC	ES	.	0 1605	22	08	85	CRO	ES 2	0		
01109	RT	419.	1140.		.			ES	.	0 7976	04	10	85	CRO	ES 2	0		
0 781	RT	221.	.		.			ES	.		22	08	85	CRO	ES 2	0		
0 837	RT	222.	170.		.			ES	.	0 1694	22	08	85	CRO	ES 2	0		
0 729	RT	188.	105.		.	1	SC	ES	.		22	08	85	CRO	ES 2	0		
01121	RT	423.	1090.		.			ES	.	0 7988	04	10	85	CRO	ES 2	0		
0 740	RT	408.	980.		.	3	SC	ES	.	0 1625	22	08	85	CRO	ES 2	0		
0 797	RT	396.	880.		.			ES	.	0 1668	22	08	85	CRO	ES 2	0		
0 712	RT	208.	130.		.	1	SC	ES	.		22	08	85	CRO	ES 2	0		
01073	RT	392.	880.		.	3	SC	ES	.	0 7958	04	10	85	CRO	ES 2	0		
0 773	RT	338.	580.		.	2	SC	ES	.	0 1648	22	08	85	CRO	ES 2	0		
0 833	RT	327.	470.		.			ES	.	0 1691	22	08	85	CRO	ES 2	0		
0 727	RT	322.	420.		.	2	SC	ES	.	0 1618	22	08	85	CRO	ES 2	0		
01119	RT	394.	960.		.			ES	.	0 7986	04	10	85	CRO	ES 2	0		
0 792	RT	287.	325.		.			ES	.	0 1663	22	08	85	CRO	ES 2	0		
0 820	RT	278.	260.	11	.	2	SD	ES	.		22	08	85	CRO	ES 2	1		
0 703	RT	398.	800.		.	3	SC	ES	.	0 1603	22	08	85	CRO	ES 2	0		
01099	RT	374.	740.		.			ES	.	0 1409	04	10	85	CRO	ES 2	2		
0 771	RT	473.	1380.		.	4	SC	ES	.	0 1646	22	08	85	CRO	ES 2	0		
0 841	RT	345.	.		.			ES	.	0 1699	22	08	85	CRO	ES 2	0		
0 731	RT	.	240.		.	1	SC	ES	.	0 1621	22	08	85	CRO	ES 2	0		
01123	RT	335.	540.		.			ES	.	0 7990	04	10	85	CRO	ES 2	0		
0 795	RT	301.	395.		.			ES	.	0 1666	22	08	85	CRO	ES 2	0		
0 808	RT	386.	730.		.			ES	.	0 1677	22	08	85	CRO	ES 2	0		
0 707	RT	298.	410.		.	2	SC	ES	.	0 1607	22	08	85	CRO	ES 2	0		
01072	RT	404.	920.		.	3	SC	ES	.	0 7955	04	10	85	CRO	ES 2	0		
0 779	RT	232.	.		.			ES	.	0 1653	22	08	85	CRO	ES 2	0		
0 831	RT	401.	750.		.			ES	.	0 1689	22	08	85	CRO	ES 2	0		
0 726	RT	462.	1480.		.	4	SC	ES	.	0 1617	22	08	85	CRO	ES 2	0		
01118	RT	516.	1780.		.			ES	.	0 7985	04	10	85	CRO	ES 2	0		
0 794	RT	223.	190.		.			ES	.	0 1665	22	08	85	CRO	ES 2	0		
0 816	RT	209.	.		.			ES	.		22	08	85	CRO	ES 2	0		
0 702	RT	355.	630.		.	3	SC	ES	.	0 1602	22	08	85	CRO	ES 2	0		
01101	RT	304.	400.		.			ES	.	0 7970	04	10	85	CRO	ES 2	0		
0 770	RT	340.	600.		.	2	SC	ES	.	0 1645	22	08	85	CRO	ES 2	0		
0 840	RT	294.	.		.			ES	.	0 1697	22	08	85	CRO	ES 2	0		
0 730	RT	220.	175.		.	1	SC	ES	.	0 1620	22	08	85	CRO	ES 2	0		
01122	RT	337.	640.		.			ES	.	0 7989	04	10	85	CRO	ES 2	0		
0 796	RT	245.	200.		.			ES	.	0 1667	22	08	85	CRO	ES 2	0		
0 798	RT	321.	470.	11	.	2	SD	ES	.		22	08	85	CRO	ES 2	1		
0 706	RT	402.	790.		.	3	SC	ES	.	0 1606	22	08	85	CRO	ES 2	0		
01074	RT	383.	675.		.	3	SC	ES	.	0 7957	04	10	85	CRO	ES 2	0		
0 774	RT	232.	180.		.	2	SC	ES	.	0 1649	22	08	85	CRO	ES 2	0		
0 835	RT	335.	500.		.			ES	.	0 1693	22	08	85	CRO	ES 2	0		
0 728	RT	304.	400.		.	2	SC	ES	.	0 1619	22	08	85	CRO	ES 2	0		
01120	RT	352.	590.		.			ES	.	0 7987	04	10	85	CRO	ES 2	0		
0 772	RT	282.	390.		.	2	SC	ES	.	0 1647	22	08	85	CRO	ES 2	0		
0 814	RT	330.	540.		.			ES	.	0 1683	22	08	85	CRO	ES 2	0		
0 704	RT	387.	810.		.	3	SC	ES	.	0 1604	22	08	85	CRO	ES 2	0		
01089	RT	158.	40.		.	1	SC	ES	.		04	10	85	CRO	ES 2	0		
0 778	RT	208.	.		.			ES	.		22	08	85	CRO	ES 2	0		
0 830	RT	283.	270.		.			ES	.	0 1688	22	08	85	CRO	ES 2	0		
0 732	RT	170.	70.		.	1	SC	ES	.		22	08	85	CRO	ES 2	0		
01124	RT	183.	80.		.			ES	.		04	10	85	CRO	ES 2	0		

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                                  RL&L ENVIRONMENTAL SURVICES LTD.
                            FISHERIES DATA - PRINT OUT BY LOCATION AND SITE
                            ***********************************************

SAMPLE SP.   LENGTH  WEIGHT  SEX- GONAD AGE AGE  CAPT MESH    TAG      DATE     LOCATION  SITE CAPT PRES        COMMENTS
  NO.         (MM)    (G)    MAT. WT(G)     METH METH (CM)    NO.   DAY MO YR                  CODE CODE
-----------------------------------------------------------------------------------------------------------------------------
0 780 RT      204.       .          .               ES    .             22 08 85   CRO      ES 2   0
0 811 RT      342.    520.          .               ES    .    0 1680   22 08 85   CRO      ES 2   0
01113 RT      484.   1550.          .               ES    .    0 7880   04 10 85   CRO      ES 2   0
0 834 RT      274.    330.          .               ES    .    0 1692   22 08 85   CRO      ES 2   0
01093 RT      345.    580.          .    2   SC     ES    .    0 7965   04 10 85   CRO      ES 2   0
0 810 RT      349.    580.          .               ES    .    0 1679   22 08 85   CRO      ES 2   0
01105 RT      271.    300.          .               ES    .    0 7974   04 10 85   CRO      ES 2   0
0 832 RT      322.    620.          .               ES    .    0 1690   22 08 85   CRO      ES 2   0
01087 RT      335.    470.          .    2   SC     ES    .    0 7982   04 10 85   CRO      ES 2   0
0 812 RT      355.    610.          .               ES    .    0 1681   22 08 85   CRO      ES 2   0
01111 RT      304.    380.          .               ES    .    0 7976   04 10 85   CRO      ES 2   0
0 836 RT      204.       .          .               ES    .             22 08 85   CRO      ES 2   0
01098 RT      324.    540.          .               ES    .    0 1523   04 10 85   CRO      ES 2   2
01103 RT      382.    785.          .               ES    .    0 7972   04 10 85   CRO      ES 2   0
01091 RT      376.    700.          .               ES    .    0 2409   04 10 85   CRO      ES 2   2
01115 RT      337.    580.          .               ES    .    0 7882   04 10 85   CRO      ES 2   0
01094 RT      270.    275.          .    2   SC     ES    .    0 7966   04 10 85   CRO      ES 2   0
01107 RT      207.    110.          .    1   SC     ES    .             04 10 85   CRO      ES 2   0
01086 RT      336.    530.          .    2   SC     ES    .    0 7961   04 10 85   CRO      ES 2   0
01110 RT      382.    980.          .               ES    .    0 7977   04 10 85   CRO      ES 2   0
01100 RT      473.   1420.          .    4   SC     ES    .    0 7969   04 10 85   CRO      ES 2   0
01102 RT      347.    675.          .               ES    .    0 7971   04 10 85   CRO      ES 2   0
01090 RT       92.       .          .    0   SC     ES    .             04 10 85   CRO      ES 2   0
01114 RT      316.    500.          .               ES    .    0 7981   04 10 85   CRO      ES 2   0
01089 RT      495.   1820.          .               ES    .    0 7964   04 10 85   CRO      ES 2   0      SCALES EMBEDDED
01106 RT      319.    510.          .               ES    .    0 7975   04 10 85   CRO      ES 2   0
01092 RT      329.    550.          .    2   SC     ES    .    0 7963   04 10 85   CRO      ES 2   0
01112 RT      476.   1520.          .    4   SO     ES    .             04 10 85   CRO      ES 2   1      ST-26 LARGE PLECOPS
01104 RT      344.    670.          .               ES    .    0 7973   04 10 85   CRO      ES 2   0
01116 RT      325.    560.          .               ES    .    0 7983   04 10 85   CRO      ES 2   0
0 513 BNT     237.    205.          .    1   SC     ES    .    0 1522   20 08 85   CRO      ES 3   0
01278 BNT     253.    195.          .    1   SC     ES    .    0 7964   05 10 85   CRO      ES 3   0
0 515 BNT     203.    110.          .    1   SC     ES    .             20 08 85   CRO      ES 3   0
01250 BNT     402.    780.    8     .               ES    .    0 7946   05 10 85   CRO      ES 3   0      SCALES EMBEDDED
0 514 BNT     219.    140.          .    1   SC     ES    .             20 08 85   CRO      ES 3   0
01239 BNT     581.   2700.          .               ES    .    0 7945   05 10 85   CRO      ES 3   0
01251 BNT     411.    925.    7     .               ES    .    0 7947   05 10 85   CRO      ES 3   0
01252 BNT     269.    255.   10     .    1   SC     ES    .    0 7948   05 10 85   CRO      ES 3   0
0 448 MW      228.    150.          .               ES    .             20 08 85   CRO      ES 3   0
01257 MW      266.    250.    7     .               ES    .             05 10 85   CRO      ES 3   0
0 477 MW      235.    180.    5     .    2   SC     ES    .             20 08 85   CRO      ES 3   1
01209 MW      264.    240.    7     .               ES    .             05 10 85   CRO      ES 3   0
0 429 MW      258.       .          .               ES    .             20 08 85   CRO      ES 3   0
01253 MW      308.    380.    7     .               ES    .             05 10 85   CRO      ES 3   0
0 525 MW      225.    185.          .               ES    .             20 08 85   CRO      ES 3   0
01245 MW      271.    245.    8     .               ES    .             05 10 85   CRO      ES 3   0
0 461 MW      195.    100.          .               ES    .             20 08 85   CRO      ES 3   0
01254 MW      303.    320.    7     .               ES    .             05 10 85   CRO      ES 3   0
0 499 MW      248.       .          .    3   SC     ES    .    0 1510   20 08 85   CRO      ES 3   0
01213 MW      301.    325.    7     .               ES    .             05 10 85   CRO      ES 3   0
0 421 MW      250.       .          .               ES    .             20 08 85   CRO      ES 3   0
01255 MW      285.    280.    7     .               ES    .             05 10 85   CRO      ES 3   0
0 518 MW      312.    350.          .               ES    .    0 1523   20 08 85   CRO      ES 3   0
01247 MW      303.    370.    7     .               ES    .             05 10 85   CRO      ES 3   0
0 453 MW      335.    490.          .    5   SC     ES    .             20 08 85   CRO      ES 3   0
01256 MW      305.    340.    7     .               ES    .             05 10 85   CRO      ES 3   0
0 488 MW      424.    910.          .    9   SC     ES    .    0 1501   20 08 85   CRO      ES 3   0
01207 MW      307.    330.   17     .               ES    .             05 10 85   CRO      ES 3   0
0 437 MW      210.       .          .               ES    .             20 08 85   CRO      ES 3   0
01246 MW      304.    390.   17     .               ES    .             05 10 85   CRO      ES 3   0
0 529 MW      250.    220.          .               ES    .    0 1533   20 08 85   CRO      ES 3   0
01229 MW      185.     50.   99     .               ES    .             05 10 85   CRO      ES 3   0
0 473 MW      235.    180.    8     .    2   SC     ES    .             20 08 85   CRO      ES 3   1
01248 MW      386.    800.   17     .               ES    .             05 10 85   CRO      ES 3   0
0 501 MW      272.    290.          .        SC     ES    .    0 1512   20 08 85   CRO      ES 3   0
01211 MW      276.    255.    7     .               ES    .             05 10 85   CRO      ES 3   0
0 425 MW      236.       .          .               ES    .             20 08 85   CRO      ES 3   0
01222 MW      283.    305.   17     .               ES    .             05 10 85   CRO      ES 3   0
0 509 MW      294.    315.          .    3   SC     ES    .    0 1518   20 08 85   CRO      ES 3   0
01208 MW      270.    230.          .               ES    .             05 10 85   CRO      ES 3   0
0 449 MW      214.    130.          .               ES    .             20 08 85   CRO      ES 3   0
01241 MW      355.    680.   17     .               ES    .             05 10 85   CRO      ES 3   0
0 479 MW      347.    720.          .    8   SC     ES    .             20 08 85   CRO      ES 3   0
01210 MW      331.    480.   17     .               ES    .             05 10 85   CRO      ES 3   0
0 433 MW      277.       .          .               ES    .             20 08 85   CRO      ES 3   0
01220 MW      402.    960.    7     .               ES    .    0 7943   05 10 85   CRO      ES 3   0
0 527 MW      253.    240.          .               ES    .    0 1531   20 08 85   CRO      ES 3   0
01212 MW      323.    415.    7     .               ES    .             05 10 85   CRO      ES 3   0
0 465 MW      264.    240.   16     .    3   SC     ES    .             20 08 85   CRO      ES 3   1
01233 MW      301.    305.          .               ES    .             05 10 85   CRO      ES 3   1
0 500 MW      278.    300.          .        SC     ES    .    0 1511   20 08 85   CRO      ES 3   0
01225 MW      275.    290.   17     .               ES    .             05 10 85   CRO      ES 3   0
0 423 MW      264.       .          .               ES    .             20 08 85   CRO      ES 3   0
01237 MW      308.    375.    7     .               ES    .             05 10 85   CRO      ES 3   0
0 521 MW      314.    360.          .               ES    .    0 1527   20 08 85   CRO      ES 3   0
01215 MW      322.    395.    7     .               ES    .             05 10 85   CRO      ES 3   1
0 457 MW      247.    230.          .               ES    .             20 08 85   CRO      ES 3   0
01231 MW      160.     60.   99     .               ES    .             05 10 85   CRO      ES 3   0
0 478 MW      214.    145.    8     .    2   SC     ES    .             20 08 85   CRO      ES 3   1
01223 MW      296.    340.   17     .               ES    .             05 10 85   CRO      ES 3   0
0 441 MW      221.       .          .               ES    .             20 08 85   CRO      ES 3   0
01243 MW      360.       .   17     .               ES    .             05 10 85   CRO      ES 3   0
0 526 MW      318.    350.          .               ES    .    0 1530   20 08 85   CRO      ES 3   0
01214 MW      280.    280.          .               ES    .             05 10 85   CRO      ES 3   0
0 475 MW      217.    130.   11     .    2   SC     ES    .             20 08 85   CRO      ES 3   1
01235 MW      311.    400.    7     .               ES    .             05 10 85   CRO      ES 3   0
0 505 MW      218.    170.    8     .               ES    .             20 08 85   CRO      ES 3   1
01227 MW      234.    175.   17     .               ES    .             05 10 85   CRO      ES 3   0
0 427 MW      220.       .          .               ES    .             20 08 85   CRO      ES 3   0
01240 MW      315.    315.          .               ES    .             05 10 85   CRO      ES 3   0
0 512 MW      318.    360.          .    5   SC     ES    .    0 1521   20 08 85   CRO      ES 3   0
01224 MW      233.    180.    8     .               ES    .             05 10 85   CRO      ES 3   0
0 451 MW      207.    115.          .               ES    .             20 08 85   CRO      ES 3   0
01230 MW      202.    115.   99     .               ES    .             05 10 85   CRO      ES 3   0
0 480 MW      333.    540.          .    5   SC     ES    .             20 08 85   CRO      ES 3   0
01226 MW      226.    180.   17     .               ES    .             05 10 85   CRO      ES 3   0
0 431 MW      207.       .          .               ES    .             20 08 85   CRO      ES 3   0
01242 MW      332.    480.    7     .               ES    .             05 10 85   CRO      ES 3   0
0 528 MW      255.    280.          .               ES    .    0 1532   20 08 85   CRO      ES 3   0
01228 MW      228.    150.    7     .               ES    .             05 10 85   CRO      ES 3   0
0 484 MW      248.    180.    5     .    3   SC     ES    .             20 08 85   CRO      ES 3   1
01234 MW      349.    480.   17     .               ES    .             05 10 85   CRO      ES 3   0
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RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY LOCATION AND SITE

SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY MO YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
0 503	MW	215.	165.		.			ES	.	0 5114	20 08 85	CRO	ES 3	2		
01238	MW	274.	285.	17	.			ES	.		05 10 85	CRO	ES 3	0		
0 422	MW	222.	.		.			ES	.		20 08 85	CRO	ES 3	0		
01232	MW	327.	340.		.			ES	.		05 10 85	CRO	ES 3	0		
0 519	MW	231.	180.		.			ES	.	0 1524	20 08 85	CRO	ES 3	0		
01244	MW	322.	455.	7	.			ES	.		05 10 85	CRO	ES 3	0		
0 455	MW	292.	300.		.			ES	.		20 08 85	CRO	ES 3	0		
01236	MW	316.	415.	17	.			ES	.		05 10 85	CRO	ES 3	0		
0 507	MW	329.	410.		.	5	SC	ES	.	0 1516	20 08 85	CRO	ES 3	0		
0 439	MW	285.	.		.			ES	.		20 08 85	CRO	ES 3	0		
0 523	MW	318.	420.		.			ES	.	0 1528	20 08 85	CRO	ES 3	0		
0 474	MW	181.	90.	1	.	2	SC	ES	.		20 08 85	CRO	ES 3	1		
0 502	MW	247.	190.		.		SC	ES	.	0 1513	20 08 85	CRO	ES 3	0		
0 426	MW	204.	.		.			ES	.		20 08 85	CRO	ES 3	0		
0 520	MW	258.	220.		.			ES	.	0 1525	20 08 85	CRO	ES 3	0		
0 450	MW	227.	180.		.			ES	.		20 08 85	CRO	ES 3	0		
0 506	MW	324.	450.		.	5	SC	ES	.	0 1515	20 08 85	CRO	ES 3	0		
0 435	MW	225.	.		.			ES	.		20 08 85	CRO	ES 3	0		
0 522	MW	285.	315.		.			ES	.	0 1526	20 08 85	CRO	ES 3	0		
0 457	MW	224.	150.		.			ES	.		20 08 85	CRO	ES 3	0		
0 504	MW	244.	200.		.		SC	ES	.	0 1514	20 08 85	CRO	ES 3	0		
0 424	MW	234.	.		.			ES	.		20 08 85	CRO	ES 3	0		
0 524	MW	300.	320.		.			ES	.	0 1529	20 08 85	CRO	ES 3	0		
0 459	MW	184.	80.		.			ES	.		20 08 85	CRO	ES 3	0		
0 508	MW	305.	350.		.			ES	.	0 1517	20 08 85	CRO	ES 3	0		
0 438	MW	221.	.		.			ES	.		20 08 85	CRO	ES 3	0		
0 476	MW	269	280.	6	.	3	SC	ES	.		20 08 85	CRO	ES 3	1		
0 428	MW	235.	.		.			ES	.		20 08 85	CRO	ES 3	0		
0 452	MW	278	250.		.			ES	.		20 08 85	CRO	ES 3	0		
0 430	MW	233.	.		.			ES	.		20 08 85	CRO	ES 3	0		
0 462	MW	220	130.		.			ES	.		20 08 85	CRO	ES 3	0		
0 440	MW	200	.		.			ES	.		20 08 85	CRO	ES 3	0		
0 454	MW	248.	210.		.			ES	.		20 08 85	CRO	ES 3	0		
0 434	MW	284.	.		.			ES	.		20 08 85	CRO	ES 3	0		
0 466	MW	314.	440.		.	5	SC	ES	.		20 08 85	CRO	ES 3	0		
0 432	MW	233.	.		.			ES	.		26 08 85	CRO	ES 3	0		
0 458	MW	270.	240.		.			ES	.		20 08 85	CRO	ES 3	0		
0 436	MW	231	.		.			ES	.		20 08 85	CRO	ES 3	0		
0 456	MW	313.	390.		.	4	SC	ES	.		20 08 85	CRO	ES 3	0		
0 460	MW	271	235.		.			ES	.		20 08 85	CRO	ES 3	0		
01276	RT	411.	1010.		.			ES	.	0 7863	05 10 85	CRO	ES 3	0		
0 516	RT	148.	35.		.	1	SC	ES	.		20 08 85	CRO	ES 3	0		
01261	RT	445.	1180.		.			ES	.	0 7851	05 10 85	CRO	ES 3	0		
0 443	RT	257.	225.		.		SC	ES	.		20 08 85	CRO	ES 3	0		
01277	RT	162.	40		.			ES	.		05 10 85	CRO	ES 3	0		
0 489	RT	347.	680.		.	3	SC	ES	.	0 1503	20 08 85	CRO	ES 3	0		
01258	RT	.	.		.			ES	.	0 7949	05 10 85	CRO	ES 3	0		ESCAPED
0 469	RT	177.	90.		.	1	SC	ES	.		20 08 85	CRO	ES 3	0		
01217	RT	152.	30.		.			ES	.		05 10 85	CRO	ES 3	0		
0 517	RT	188.	95.		.	1	SC	ES	.		20 08 85	CRO	ES 3	0		
01259	RT	237.	.		.			ES	.	0 7950	05 10 85	CRO	ES 3	0		
0 442	RT	281	270.		.	2	SC	ES	.		20 08 85	CRO	ES 3	0		
01279	RT	239.	180.		.			ES	.	0 7865	05 10 85	CRO	ES 3	0		
0 493	RT	253.	205.		.	2	SC	ES	.	0 1507	20 08 85	CRO	ES 3	0		
01260	RT	459.	1270.		.			ES	.	0 1713	05 10 85	CRO	ES 3	2		
0 445	RT	212.	105.		.		SC	ES	.		20 08 85	CRO	ES 3	0		
01221	RT	180.	75.		.			ES	.		05 10 85	CRO	ES 3	0		
0 510	RT	257.	230.		.	2	SC	ES	.	0 1519	20 08 85	CRO	ES 3	0		
01263	RT	290.	320.		.			ES	.	0 7853	05 10 85	CRO	ES 3	0		
0 444	RT	196.	115.		.	1	SC	ES	.		20 08 85	CRO	ES 3	0		
01249	RT	380.	810.		.			ES	.	0 7944	05 10 85	CRO	ES 3	0		
0 481	RT	410.	1010.		.	3	SC	ES	.	0 1486	20 08 85	CRO	ES 3	0		
01262	RT	355.	565.		.			ES	.	0 7852	05 10 85	CRO	ES 3	0		
0 463	RT	304.	400.		.	3	SC	ES	.		20 08 85	CRO	ES 3	0		
01216	RT	158.	45.		.			ES	.		05 10 85	CRO	ES 3	0		
0 511	RT	357.	800.		.	3	SC	ES	.	0 1520	20 08 85	CRO	ES 3	0		
01265	RT	413.	980.		.			ES	.	0 7855	05 10 85	CRO	ES 3	0		
0 447	RT	202.	100.		.		SC	ES	.		20 08 85	CRO	ES 3	0		
01219	RT	381.	840.		.			ES	.	0 7942	05 10 85	CRO	ES 3	0		
0 497	RT	180.	70.		.	1	SC	ES	.		20 08 85	CRO	ES 3	0		
01264	RT	369.	750.		.			ES	.	0 7854	05 10 85	CRO	ES 3	0		
0 471	RT	165.	60.		.	1	SC	ES	.		20 08 85	CRO	ES 3	0		
01218	RT	204.	115.		.			ES	.		05 10 85	CRO	ES 3	0		
0 487	RT	334.	540.		.	3	SC	ES	.	0 1502	20 08 85	CRO	ES 3	0		
01266	RT	318.	480.		.			ES	.		05 10 85	CRO	ES 3	1		MORTALITY
0 446	RT	266.	260.		.		SC	ES	.		20 08 85	CRO	ES 3	0		
01267	RT	388	710.		.			ES	.	0 1677	05 10 85	CRO	ES 3	2		
0 495	RT	230	160.		.	2	SC	ES	.	0 1509	20 08 85	CRO	ES 3	0		
01268	RT	294	400.		.			ES	.	0 7857	05 10 85	CRO	ES 3	0		
0 466	RT	218.	155.		.	2	SC	ES	.		20 08 85	CRO	ES 3	0		
01269	RT	325.	450.		.			ES	.	0 1724	05 10 85	CRO	ES 3	2		
0 483	RT	413.	1040.		.	4	SC	ES	.	0 1500	20 08 85	CRO	ES 3	0		
01270	RT	391	.		.			ES	.	0 1444	05 10 85	CRO	ES 3	2		
0 470	RT	236.	190.		.	2	SC	ES	.		20 08 85	CRO	ES 3	0		
01271	RT	445.	1240.		.			ES	.	0 7858	05 10 85	CRO	ES 3	0		
0 498	RT	209.	145.		.		SC	ES	.		20 08 85	CRO	ES 3	0		
01272	RT	455.	1230.		.			ES	.	0 7859	05 10 85	CRO	ES 3	0		
0 472	RT	265.	290.	1	.		SO	ES	.		20 08 85	CRO	ES 3	1		
01273	RT	296.	325.		.			ES	.	0 7860	05 10 85	CRO	ES 3	0		
0 491	RT	279.	300.		.	2	SC	ES	.	0 1505	20 08 85	CRO	ES 3	0		
01274	RT	347.	815.		.			ES	.	0 7861	05 10 85	CRO	ES 3	0		
0 494	RT	264.	210.		.		SC	ES	.	0 1508	20 08 85	CRO	ES 3	0		
01275	RT	396.	810.		.			ES	.	0 7862	05 10 85	CRO	ES 3	0		
0 482	RT	407.	950.		.		SC	ES	.	0 1499	20 08 85	CRO	ES 3	0		
0 496	RT	174.	65.		.	1	SC	ES	.		20 08 85	CRO	ES 3	0		
0 485	RT	203.	130.		.		SC	ES	.		20 08 85	CRO	ES 3	0		
0 484	RT	312.	480.		.	2	SC	ES	.		20 08 85	CRO	ES 3	0		
0 490	RT	298.	350.		.	2	SC	ES	.	0 1504	20 08 85	CRO	ES 3	0		
0 488	RT	206.	135.		.			ES	.		20 08 85	CRO	ES 3	0		
0 492	RT	266.	230.		.	2	SC	ES	.	0 1506	20 08 85	CRO	ES 3	0		
01284	BNT	563.	.	7	.			ES	.	0 7870	05 10 85	CRO	ES 3A	0		ESCAPED
01293	BNT	392.	815.	10	.	2	SC	ES	.	0 7878	05 10 85	CRO	ES 3A	0		
01281	BNT	526.	1750.	8	.			ES	.	0 7867	05 10 85	CRO	ES 3A	0		
01280	BNT	443.	1140.	17	.	3	SC	ES	.	0 7866	05 10 85	CRO	ES 3A	0		
01282	MW	371.	875.	8	.			ES	.	0 7868	05 10 85	CRO	ES 3A	0		
01285	MW	428.	.	17	.			ES	.	0 7871	05 10 85	CRO	ES 3A	0		
01286	MW	435.	1230.		.			ES	.	0 7874	05 10 85	CRO	ES 3A	0		
01287	RT	528.	1850.		.			ES	.	0 7873	05 10 85	CRO	ES 3A	0		
01294	RT	73.	.		.	0	LF	ES	.		05 10 85	CRO	ES 3A	0		
01289	RT	323.	455.		.			ES	.	0 7875	05 10 85	CRO	ES 3A	0		
01292	RT	320.	420.		.			ES	.	0 7876	05 10 85	CRO	ES 3A	0		
01283	RT	365.	670.		.			ES	.	0 7869	05 10 85	CRO	ES 3A	0		

RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY LOCATION AND SITE
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SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY MO YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
01280	RT	341	643.		.			ES	.	0 7876	05 10 85	CRO	ES 3A	0		
01295	RT	69.	.		.	0	LF	ES	.		05 10 85	CRO	ES 3A	0		
01286	RT	423.	1175.		.			ES	.	0 7872	05 10 85	CRO	ES 3A	0		
01291	RT	304.	380.		.			ES	.	0 7877	05 10 85	CRO	ES 3A	0		
0 199	BNT	323.	480.		.	2	SC	ES	.	0 1397	18 08 85	OLD	ES 1	0		
01463	BNT	581.	1880.	10	.		SC	ES	.	0 1781	19 10 85	OLD	ES 1	0		
0 145	BNT	321.	480.		.	2	SC	ES	.	0 1367	18 08 85	OLD	ES 1	0		
0 128	DV	209.	.		.	2	SC	ES	.		18 08 85	OLD	ES 1	0		
01434	LING	451.	.		.			ES	.	0 1756	19 10 85	OLD	ES 1	0		
01450	MW	288.	270.	8	.	4	SC	ES	.	0 1771	19 10 85	OLD	ES 1	0		
0 221	MW	157.	30.		.			ES	.		18 08 85	OLD	ES 1	0		
01455	MW	233.	145.	8	.			ES	.		19 10 85	OLD	ES 1	0		
01414	MW	276.	.	8	.		SC	ES	.	0 1752	19 10 85	OLD	ES 1	0		
01442	MW	284.	240.	8	.	4	SC	ES	.	0 1763	19 10 85	OLD	ES 1	0		
0 157	MW	152.	50.		.	1	SC	ES	.		18 08 85	OLD	ES 1	0		
01453	MW	250.	180.		.			ES	.	0 1774	19 10 85	OLD	ES 1	0		
0 156	MW	204.	100.		.	2	SC	ES	.		18 08 85	OLD	ES 1	0		
01454	MW	280.	.	19	.			ES	.	0 1775	19 10 85	OLD	ES 1	0		
0 225	MW	153.	.		.			ES	.		18 08 85	OLD	ES 1	0		
01449	MW	276.	240.	8	.		SC	ES	.	0 1770	19 10 85	OLD	ES 1	0		
01426	MW	243.	.	8	.		SC	ES	.		19 10 85	OLD	ES 1	0		
01431	MW	316.	.	8	.	5	SC	ES	.	0 1753	19 10 85	OLD	ES 1	0		
0 218	MW	248.	.		.			ES	.		18 08 85	OLD	ES 1	0		
01451	MW	298.	290.	19	.	4	SC	ES	.	0 1772	19 10 85	OLD	ES 1	0		
01403	MW	322.	.	8	.	5	SC	ES	.	0 8894	19 10 85	OLD	ES 1	0		ES1
01456	MW	257.	205.	8	.			ES	.		19 10 85	OLD	ES 1	0		
0 223	MW	128.	.		.			ES	.		18 08 85	OLD	ES 1	0		
01459	MW	220.	120.	99	.			ES	.		19 10 85	OLD	ES 1	0		
01432	MW	382.	.	8	.			ES	.	0 1754	19 10 85	OLD	ES 1	0		
01446	MW	263.	215	19	.		SC	ES	.	0 1767	19 10 85	OLD	ES 1	0		
0 173	MW	171.	.		.			ES	.		18 08 85	OLD	ES 1	0		
01457	MW	257.	200	8	.			ES	.		19 10 85	OLD	ES 1	0		
0 133	MW	183.	.		.			ES	.		18 08 85	OLD	ES 1	0		
01458	MW	218.	100.	99	.			ES	.		19 10 85	OLD	ES 1	0		
0 226	MW	165.	.		.			ES	.		18 08 85	OLD	ES 1	0		
01461	MW	204	95.	99	.			ES	.		19 10 85	OLD	ES 1	0		
01424	MW	274.	.	8	.	3	SC	ES	.	0 1759	19 10 85	OLD	ES 1	0		
01406	MW	294.	.	8	.	4	SC	ES	.		19 10 85	OLD	ES 1	0		
0 189	MW	210.	140		.			ES	.		18 08 85	OLD	ES 1	0		
01452	MW	263.	.	8	.			ES	.	0 1773	19 10 85	OLD	ES 1	0		
01427	MW	180.	.	99	.	1	SC	ES	.		19 10 85	OLD	ES 1	0		
01404	MW	311.	.	8	.	5	SC	ES	.	0 8895	19 10 85	OLD	ES 1	0		
0 222	MW	155	.		.			ES	.		18 08 85	OLD	ES 1	0		
01460	MW	160.	.	99	.			ES	.		19 10 85	OLD	ES 1	0		
01422	MW	298.	.	8	.		SC	ES	.	0 1757	19 10 85	OLD	ES 1	0		
01440	MW	333.	.		.			ES	.	0 1762	19 10 85	OLD	ES 1	0		
0 188	MW	86.	.		.	0	LF	ES	.		18 08 85	OLD	ES 1	0		
01429	MW	153.		99	.			ES	.		19 10 85	OLD	ES 1	0		
0 138	MW	357.	580		.	7	SC	ES	.	0 1383	18 08 85	OLD	ES 1	0		
01444	MW	278.	245.	19	.		SC	ES	.	0 1765	19 10 85	OLD	ES 1	0		
0 224	MW	134.			.			ES	.		18 08 85	OLD	ES 1	0		
01448	MW	273.	235.	8	.		SC	ES	.	0 1769	19 10 85	OLD	ES 1	0		
01428	MW	152		99	.	1	SC	ES	.		19 10 85	OLD	ES 1	0		
01433	MW	349.	.	18	.	5	SC	ES	.	0 1755	19 10 85	OLD	ES 1	0		
0 219	MW	211.	120.		.			ES	.		18 08 85	OLD	ES 1	0		
01430	MW	380.	.	8	.	6	SC	ES	.	0 1571	19 10 85	OLD	ES 1	0		
0 176	MW	327.	400.		.	6	SC	ES	.	0 1391	18 08 85	OLD	ES 1	0		
01410	MW	272.	.	8	.		SC	ES	.	0 8900	19 10 85	OLD	ES 1	0		
0 198	MW	138.	30.		.			ES	.		18 08 85	OLD	ES 1	0		
0 135	MW	141.	.		.			ES	.		18 08 85	OLD	ES 1	0		
0 161	MW	158.	40.		.			ES	.		18 08 85	OLD	ES 1	0		
01408	MW	291.	.	8	.	4	SC	ES	.	0 8898	19 10 85	OLD	ES 1	0		
0 220	MW	182.	60.		.			ES	.		18 08 85	OLD	ES 1	0		
01445	MW	287.	275.	19	.		SC	ES	.	0 1766	19 10 85	OLD	ES 1	0		
0 174	MW	83.	.		.	0	LF	ES	.		18 08 85	OLD	ES 1	0		
01405	MW	300.	.	8	.	4	SC	ES	.	0 8896	19 10 85	OLD	ES 1	0		
0 193	MW	144.	20.		.			ES	.		18 08 85	OLD	ES 1	0		
0 134	MW	144	.		.			ES	.		18 08 85	OLD	ES 1	0		
0 172	MW	152.	.		.			ES	.		18 08 85	OLD	ES 1	0		
01443	MW	280.	270	19	.		SC	ES	.	0 1764	19 10 85	OLD	ES 1	0		
0 191	MW	209	110.		.			ES	.		18 08 85	OLD	ES 1	0		
01441	MW	298.	305.	19	.		SC	ES	.		19 10 85	OLD	ES 1	1		
0 159	MW	188.	75.		.			ES	.		18 08 85	OLD	ES 1	0		
01447	MW	288.	220	19	.		SC	ES	.	0 1768	19 10 85	OLD	ES 1	0		
0 195	MW	180.	60		.			ES	.		18 08 85	OLD	ES 1	0		
0 136	MW	185.	.		.			ES	.		18 08 85	OLD	ES 1	0		
0 168	MW	300.	410.		.	5	SC	ES	.	0 1369	18 08 85	OLD	ES 1	0		
01411	MW	295.	.	9	.	4	SC	ES	.		19 10 85	OLD	ES 1	1		STMT
0 190	MW	172.	40		.			ES	.		18 08 85	OLD	ES 1	0		
01409	MW	262	.	8	.	3	SC	ES	.	0 8899	19 10 85	OLD	ES 1	0		
0 163	MW	132.	25.		.			ES	.		18 08 85	OLD	ES 1	0		
01425	MW	272.	.	8	.	4	SC	ES	.		19 10 85	OLD	ES 1	0		
0 194	MW	141.	20		.			ES	.		18 08 85	OLD	ES 1	0		
01413	MW	251.	.	8	.	3	SC	ES	.	0 1751	19 10 85	OLD	ES 1	0		
0 158	MW	145.	30		.			ES	.		18 08 85	OLD	ES 1	0		
01423	MW	269.	.	8	.	3	SC	ES	.	0 1758	19 10 85	OLD	ES 1	0		
0 192	MW	143.	20.		.			ES	.		18 08 85	OLD	ES 1	0		
01407	MW	265.	.	8	.	3	SC	ES	.	0 8897	19 10 85	OLD	ES 1	0		
0 162	MW	136.	25		.			ES	.		18 08 85	OLD	ES 1	0		
01415	MW	219.	.	99	.	2	SC	ES	.		19 10 85	OLD	ES 1	0		
0 196	MW	197.	80.		.			ES	.		18 08 85	OLD	ES 1	0		
0 160	MW	157.	35.		.			ES	.		18 08 85	OLD	ES 1	0		
0 164	MW	150.	35.		.			ES	.		18 08 85	OLD	ES 1	0		
01462	RT	374.	630.		.	3	SC	ES	.	0 1760	19 10 85	OLD	ES 1	0		
01436	RT	159.	.		.			ES	.		19 10 85	OLD	ES 1	0		
01435	RT	170.	.		.	1	SC	ES	.		19 10 85	OLD	ES 1	0		
0 229	RT	161.	.		.			ES	.		18 08 85	OLD	ES 1	0		
01437	RT	155.	.		.			ES	.		19 10 85	OLD	ES 1	0		
0 141	RT	318.	460.		.	3	SC	ES	.	0 1386	18 08 85	OLD	ES 1	0		
0 205	RT	201.	130.		.			ES	.		18 08 85	OLD	ES 1	0		
01418	RT	146.	.		.	1	SC	ES	.		19 10 85	OLD	ES 1	0		
0 227	RT	115.	.		.			ES	.		18 08 85	OLD	ES 1	0		
01417	RT	174.	.		.	1	SC	ES	.		19 10 85	OLD	ES 1	0		
0 181	RT	242.	200.		.		SC	ES	.	0 1394	18 08 85	OLD	ES 1	0		
01416	RT	183.	.		.	2	SC	ES	.		19 10 85	OLD	ES 1	0		
0 228	RT	106.	.		.			ES	.		18 08 85	OLD	ES 1	0		
0 129	RT	177.	.		.	2	SC	ES	.		18 08 85	OLD	ES 1	0		
0 201	RT	278.	310.		.	2	SC	ES	.	0 1400	18 08 85	OLD	ES 1	0		
01439	RT	198.	.		.			ES	.		19 10 85	OLD	ES 1	0		
0 189	RT	213.	140.		.		SC	ES	.		18 08 85	OLD	ES 1	0		
01438	RT	178.	.		.			ES	.		19 10 85	OLD	ES 1	0		
0 213	RT	132.	20.		.			ES	.		18 08 85	OLD	ES 1	0		

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                              RL&L ENVIRONMENTAL SERVICES LTD.
                         FISHERIES DATA - PRINT OUT BY LOCATION AND SITE
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 SAMPLE SP.   LENGTH  WEIGHT   SEX-  GONAD AGE AGE  CAPT MESH     TAG       DATE     LOCATION   SITE CAPT PRES        COMMENTS
   NO.         (MM)    (G)     MAT.  WT(G)     METH METH (CM)     NO.   DAY MO YR                    CODE CODE
---------------------------------------------------------------------------------------------------------------------------------
 01420 RT      164.        .              .   1  SC   ES    .             19 10 85   OLD      ES 1    0
 0 177 RT      217.     140.              .      SC   ES    .             18 08 85   OLD      ES 1    0
 0 149 RT      174.        .              .           ES    .             18 08 85   OLD      ES 1    0
 0 200 RT      352.     700.              .   3  SC   ES    .   0 1398    18 08 85   OLD      ES 1    0
 01412 RT      210.        .              .   2  SC   ES    .             19 10 85   OLD      ES 1    0
 0 165 RT      142.      30.   99         .   1  SO   ES    .             18 08 85   OLD      ES 1    1
 0 123 RT      260.        .              .   2  SC   ES    .   0 1377    18 08 85   OLD      ES 1    0
 0 209 RT      204.     140               .           ES    .             18 08 85   OLD      ES 1    0
 0 139 RT      263.     220.              .   3  SC   ES    .   0 1384    18 08 85   OLD      ES 1    0
 0 185 RT      178.      80.              .      SC   ES    .             18 08 85   OLD      ES 1    0
 01421 RT      138.        .              .   1  SC   ES    .             19 10 85   OLD      ES 1    0
 0 203 RT      214.     140.              .      SC   ES    .             18 08 85   OLD      ES 1    0
 0 147 RT      205.     130.              .      SC   ES    .             18 08 85   OLD      ES 1    0
 0 171 RT      141.      40.              .      SC   ES    .             18 08 85   OLD      ES 1    0
 0 122 RT      257.        .              .   2  SC   ES    .   0 1376    18 08 85   OLD      ES 1    0
 0 217 RT      192.        .              .           ES    .             18 08 85   OLD      ES 1    0
 0 125 RT      217.        .              .      SC   ES    .             18 08 85   OLD      ES 1    0
 0 175 RT      117.      20.              .      SC   ES    .             18 08 85   OLD      ES 1    0
 01419 RT      128.        .              .   1  SC   ES    .             19 10 85   OLD      ES 1    0
 0 197 RT      148.        .              .      SC   ES    .             18 08 85   OLD      ES 1    0
 0 153 RT      172.      70.              .      SC   ES    .             18 08 85   OLD      ES 1    0
 0 167 RT      245.     220.              .      SC   ES    .   0 1390    18 08 85   OLD      ES 1    0
 0 124 RT      238.        .              .   2  SC   ES    .   0 1378    18 08 85   OLD      ES 1    0
 0 207 RT      219.     150.              .           ES    .             18 08 85   OLD      ES 1    0
 0 137 RT      132.        .              .      SC   ES    .             18 08 85   OLD      ES 1    0
 0 183 RT      218.     140.              .      SC   ES    .             18 08 85   OLD      ES 1    0
 0 143 RT      159.      45.              .      SC   ES    .             18 08 85   OLD      ES 1    0
 0 202 RT      260.     240.              .      SC   ES    .   0 1399    18 08 85   OLD      ES 1    0
 0 131 RT      120.        .              .   1  SC   ES    .             18 08 85   OLD      ES 1    0
 0 170 RT      195.     100.              .      SC   ES    .             18 08 85   OLD      ES 1    0
 0 151 RT      204.     130.              .      SC   ES    .             18 08 85   OLD      ES 1    0
 0 215 RT      177.        .              .           ES    .             18 08 85   OLD      ES 1    0
 0 140 RT      227.     160.              .      SC   ES    .   0 1385    18 08 85   OLD      ES 1    0
 0 179 RT      256.     220.              .   2  SC   ES    .   0 1392    18 08 85   OLD      ES 1    0
 0 146 RT      177.      60.              .   1  SC   ES    .             18 08 85   OLD      ES 1    0
 0 204 RT      249.     240.              .           ES    .   0 1451    18 08 85   OLD      ES 1    0
 0 127 RT      237.        .              .      SC   ES    .   0 1380    18 08 85   OLD      ES 1    0
 0 187 RT      140.      25.              .      SC   ES    .             18 08 85   OLD      ES 1    0
 0 155 RT      183.      90.              .      SC   ES    .             18 08 85   OLD      ES 1    0
 0 211 RT      234.     180.              .           ES    .   0 1453    18 08 85   OLD      ES 1    0
 0 130 RT      227.        .              .      SC   ES    .   0 1381    18 08 85   OLD      ES 1    0
 0 176 RT      215.     130.              .      SC   ES    .             18 08 85   OLD      ES 1    0
 0 142 RT      201      100.              .      SC   ES    .             18 08 85   OLD      ES 1    0
 0 214 RT      126.        .              .           ES    .             18 08 85   OLD      ES 1    0
 0 128 RT      233.        .              .   2  SC   ES    .   0 1379    18 08 85   OLD      ES 1    0
 0 182 RT      240.     220.              .      SC   ES    .   0 1395    18 08 85   OLD      ES 1    0
 0 150 RT      188.      80.              .      SC   ES    .             18 08 85   OLD      ES 1    0
 0 206 RT      205.     125.              .           ES    .             18 08 85   OLD      ES 1    0
 0 132 RT      432.    1220.              .   4  SC   ES    .   0 1382    18 08 85   OLD      ES 1    0
 0 180 RT      252.     225.              .      SC   ES    .   0 1393    18 08 85   OLD      ES 1    0
 0 148 RT      227.     160.              .      SC   ES    .   0 1388    18 08 85   OLD      ES 1    0
 0 216 RT      133.        .              .           ES    .             18 08 85   OLD      ES 1    0
 0 154 RT      196.      90.              .      SC   ES    .             18 08 85   OLD      ES 1    0
 0 186 RT      125.      20.              .   1  SC   ES    .             18 08 85   OLD      ES 1    0
 0 144 RT      208.     100.              .      SC   ES    .             18 08 85   OLD      ES 1    0
 0 210 RT      247.     180.              .           ES    .   0 1452    18 08 85   OLD      ES 1    0
 0 152 RT      199.      90.              .      SC   ES    .             18 08 85   OLD      ES 1    0
 0 184 RT      235.     180.              .      SC   ES    .   0 1396    18 08 85   OLD      ES 1    0
 0 208 RT      199.     110.              .           ES    .             18 08 85   OLD      ES 1    0
 0 188 RT      164.      50.              .   1  SO   ES    .             18 08 85   OLD      ES 1    1
 0 212 RT      172.      50.              .           ES    .             18 08 85   OLD      ES 1    0
 0 542 MW      175.        .              .           ES    .             21 08 85   OLD      ES 2    0
 0 533 MW      237.        .              .           ES    .   0 1537    21 08 85   OLD      ES 2    0
 0 682 MW      311.     330.              .           ES    .   0 1591    21 08 85   OLD      ES 2    0
 0 532 MW      287.        .              .           ES    .   0 1536    21 08 85   OLD      ES 2    0
 0 605 MW      267.     230.              .           ES    .   0 1589    21 08 85   OLD      ES 2    0
 0 537 MW      184.        .              .           ES    .             21 08 85   OLD      ES 2    0
 0 685 MW      352.     550.              .           ES    .   0 1593    21 08 85   OLD      ES 2    0
 0 530 MW      280.        .              .           ES    .   0 1534    21 08 85   OLD      ES 2    0
 0 573 MW      286.        .              .           ES    .   0 1554    21 08 85   OLD      ES 2    0
 0 535 MW      276.        .              .           ES    .   0 1539    21 08 85   OLD      ES 2    0
 0 684 MW      411.     700.              .           ES    .   0 1592    21 08 85   OLD      ES 2    0
 0 539 MW      221.        .              .           ES    .             21 08 85   OLD      ES 2    0
 0 653 MW      320      380.              .           ES    .   0 1580    21 08 85   OLD      ES 2    0
 0 534 MW      266.        .              .           ES    .   0 1538    21 08 85   OLD      ES 2    0
 0 693 MW      280.     210.              .           ES    .             21 08 85   OLD      ES 2    0
 0 538 MW      180         .              .           ES    .             21 08 85   OLD      ES 2    0
 0 557 MW      192.        .              .           ES    .             21 08 85   OLD      ES 2    0
 0 536 MW      260         .              .           ES    .   0 1540    21 08 85   OLD      ES 2    0
 0 689 MW      262.     210.              .           ES    .   0 1597    21 08 85   OLD      ES 2    0
 0 621 MW      145.      40.              .           ES    .             21 08 85   OLD      ES 2    0
 0 697 MW      167.        .              .           ES    .             21 08 85   OLD      ES 2    0
 0 581 MW      188.        .              .           ES    .             21 08 85   OLD      ES 2    0
 0 687 MW      277.     270.              .           ES    .   0 1595    21 08 85   OLD      ES 2    0
 0 661 MW      130.        .              .           ES    .             21 08 85   OLD      ES 2    0
 0 695 MW      126.        .              .           ES    .             21 08 85   OLD      ES 2    0
 0 549 MW      298.        .              .           ES    .   0 1544    21 08 85   OLD      ES 2    0
 0 691 MW      150.      30               .           ES    .             21 08 85   OLD      ES 2    0
 0 613 MW      271.     220.              .           ES    .   0 1577    21 08 85   OLD      ES 2    0
 0 694 MW      138.        .              .           ES    .             21 08 85   OLD      ES 2    0
 0 577 MW      230.        .              .           ES    .             21 08 85   OLD      ES 2    0
 0 686 MW      316.     420.              .           ES    .   0 1594    21 08 85   OLD      ES 2    0
 0 657 MW      279.     250.              .           ES    .   0 1584    21 08 85   OLD      ES 2    0
 0 696 MW      139.        .              .           ES    .             21 08 85   OLD      ES 2    0
 0 566 MW      337.        .              .           ES    .   0 1549    21 08 85   OLD      ES 2    0
 0 690 MW      197.      70.              .           ES    .             21 08 85   OLD      ES 2    0
 0 629 MW      214.     130.    5         .           ES    .             21 08 85   OLD      ES 2    1
 0 688 MW      259.     210.              .           ES    .   0 1596    21 08 85   OLD      ES 2    0
 0 563 MW       80.        .   99         .   0  LF   ES    .             21 08 85   OLD      ES 2    0
 0 692 MW      213.     110.              .           ES    .             21 08 85   OLD      ES 2    0
 0 663 MW      246.     195.   16         .           ES    .             21 08 85   OLD      ES 2    1
 0 546 MW      284.        .              .           ES    .   0 1541    21 08 85   OLD      ES 2    0
 0 609 MW      321.     390.              .           ES    .   0 1573    21 08 85   OLD      ES 2    0
 0 575 MW      276.        .              .           ES    .   0 1556    21 08 85   OLD      ES 2    0
 0 685 MW      270.     270.              .           ES    .   0 1582    21 08 85   OLD      ES 2    0
 0 561 MW      141.        .              .           ES    .             21 08 85   OLD      ES 2    0
 0 625 MW      242.     210.    6         .           ES    .             21 08 85   OLD      ES 2    1
 0 562 MW      251.        .   16         .           ES    .             21 08 85   OLD      ES 2    1
 0 662 MW      141.        .              .           ES    .             21 08 85   OLD      ES 2    0
 0 553 MW      136.        .              .           ES    .             21 08 85   OLD      ES 2    0
 0 617 MW      259.     220.              .           ES    .             21 08 85   OLD      ES 2    0
 0 579 MW      225.        .              .           ES    .             21 08 85   OLD      ES 2    0
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                                       RL&L ENVIRONMENTAL SERVICES LTD.
                                FISHERIES DATA - PRINT OUT BY LOCATION AND SITE
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SAMPLE SP.  LENGTH  WEIGHT  SEX-  GONAD AGE AGE  CAPT MESH    TAG       DATE     LOCATION  SITE CAPT PRES      COMMENTS
  NO.        (MM)    (G)    MAT.  WT(G)     METH METH (CM)    NO.   DAY MO YR                    CODE CODE
..........................................................................................................................
0 559 MW     141.        .            .           ES     .           21 08 85   OLD      ES 2   0
0 569 MW     311.        .            .           ES     .   0 1550  21 08 85   OLD      ES 2   0
0 633 MW     147.      40.            .           ES     .           21 08 85   OLD      ES 2   0
0 574 MW     264.        .            .           ES     .   0 1555  21 08 85   OLD      ES 2   0
0 654 MW     283.     240.            .           ES     .   0 1581  21 08 85   OLD      ES 2   0
0 543 MW      83.        .            .  0  LF    ES     .           21 08 85   OLD      ES 2   0
0 607 MW     360.     500.            .           ES     .   0 1571  21 08 85   OLD      ES 2   0
0 576 MW     251.        .            .           ES     .           21 08 85   OLD      ES 2   0
0 656 MW     284.     225.            .           ES     .   0 1585  21 08 85   OLD      ES 2   0
0 559 MW     131.        .            .           ES     .           21 08 85   OLD      ES 2   0
0 623 MW     148.      40.            .           ES     .           21 08 85   OLD      ES 2   0
0 578 MW     233.        .            .           ES     .           21 08 85   OLD      ES 2   0
0 658 MW     289.     280.            .           ES     .   0 1583  21 08 85   OLD      ES 2   0
0 551 MW     251.        .            .           ES     .   0 1546  21 08 85   OLD      ES 2   0
0 615 MW     235.     155.            .           ES     .           21 08 85   OLD      ES 2   0
0 580 MW     226.        .            .           ES     .           21 08 85   OLD      ES 2   0
0 660 MW     187.        .            .           ES     .           21 08 85   OLD      ES 2   0
0 571 MW     259.        .            .           ES     .   0 1552  21 08 85   OLD      ES 2   0
0 631 MW     180.      70.            .           ES     .           21 08 85   OLD      ES 2   0
0 547 MW     290.        .            .           ES     .   0 1542  21 08 85   OLD      ES 2   0
0 611 MW     259.     215.            .           ES     .   0 1575  21 08 85   OLD      ES 2   0
0 562 MW     188.        .            .           ES     .           21 08 85   OLD      ES 2   0
0 627 MW     250.     220.     6      .           ES     .           21 08 85   OLD      ES 2   1
0 555 MW     191.        .            .           ES     .           21 08 85   OLD      ES 2   0
0 619 MW     208.     115.            .           ES     .           21 08 85   OLD      ES 2   0
0 570 MW     343         .            .           ES     .   0 1551  21 08 85   OLD      ES 2   0
0 635 MW     140.      25.            .           ES     .           21 08 85   OLD      ES 2   0
0 548 MW     285         .            .           ES     .   0 1543  21 08 85   OLD      ES 2   0
0 606 MW     304.     305.            .           ES     .   0 1570  21 08 85   OLD      ES 2   0
0 558 MW     133         .            .           ES     .           21 08 85   OLD      ES 2   0
0 622 MW     157.      40.            .           ES     .           21 08 85   OLD      ES 2   0
0 550 MW     292.        .            .           ES     .   0 1545  21 08 85   OLD      ES 2   0
0 614 MW     267.     250.            .           ES     .           21 08 85   OLD      ES 2   0
0 572 MW     273.        .            .           ES     .   0 1553  21 08 85   OLD      ES 2   0
0 630 MW     198.     110.            .           ES     .           21 08 85   OLD      ES 2   0
0 554 MW     135         .            .           ES     .           21 08 85   OLD      ES 2   0
0 610 MW     296.     360.            .           ES     .   0 1574  21 08 85   OLD      ES 2   0
0 560 MW     134.        .            .           ES     .           21 08 85   OLD      ES 2   0
0 626 MW     288      330     16      .           ES     .           21 08 85   OLD      ES 2   1
0 552 MW     238.                     .           ES     .   0 1547  21 08 85   OLD      ES 2   0
0 618 MW     253      225.            .           ES     .           21 08 85   OLD      ES 2   0
0 634 MW     134       20             .           ES     .           21 08 85   OLD      ES 2   0
0 608 MW     302.     315.            .           ES     .   0 1572  21 08 85   OLD      ES 2   0
0 624 MW     194       95.            .           ES     .           21 08 85   OLD      ES 2   0
0 616 MW     288.     235.            .           ES     .           21 08 85   OLD      ES 2   0
0 632 MW     220.     130.            .           ES     .           21 08 85   OLD      ES 2   0
0 612 MW     313.     380.            .           ES     .   0 1576  21 08 85   OLD      ES 2   0
0 628 MW     227.     150.     6      .           ES     .           21 08 85   OLD      ES 2   1
0 620 MW     230      160             .           ES     .           21 08 85   OLD      ES 2   0
0 531 RT     284         .               3  SC    ES     .   0 1535  21 08 85   OLD      ES 2   0
0 669 RT     211.     130.            .           ES     .           21 08 85   OLD      ES 2   0
0 540 RT     221.        .               2  SC    ES     .           21 08 85   OLD      ES 2   0
0 589 RT     225.     150.            .  2  SC    ES     .   0 1565  21 08 85   OLD      ES 2   0
0 677 RT     141.      30                         ES     .           21 08 85   OLD      ES 2   0
0 637 RT     224.        .                  SC    ES     .   0 1578  21 08 85   OLD      ES 2   0
0 673 RT     185       70                         ES     .           21 08 85   OLD      ES 2   0
0 565 RT     158.        .               1  SC    ES     .           21 08 85   OLD      ES 2   0
0 681 RT     139.      30.                        ES     .           21 08 85   OLD      ES 2   0
0 636 RT     258.        .            .     SC    ES     .   0 1561  21 08 85   OLD      ES 2   0
0 671 RT     246.     200.            .           ES     .   0 1568  21 08 85   OLD      ES 2   0
0 585 RT     231.     175.               2  SC    ES     .           21 08 85   OLD      ES 2   0
0 679 RT     130.      25.            .           ES     .           21 08 85   OLD      ES 2   0
0 665 RT     192.      95.            .           ES     .           21 08 85   OLD      ES 2   0
0 675 RT     206      130.            .           ES     .           21 08 85   OLD      ES 2   0
0 541 RT     199.        .            .  2  SC    ES     .           21 08 85   OLD      ES 2   0
0 663 RT     110.        .                        ES     .           21 08 85   OLD      ES 2   0
0 645 RT     119.        .               1  SC    ES     .           21 08 85   OLD      ES 2   0
0 670 RT     224      145.            .           ES     .   0 1587  21 08 85   OLD      ES 2   0
0 597 RT     182       80.               2  SC    ES     .           21 08 85   OLD      ES 2   0
0 678 RT     186       60.            .           ES     .           21 08 85   OLD      ES 2   0
0 664 RT     222      135                         ES     .           21 08 85   OLD      ES 2   0
0 674 RT     215      110             .           ES     .           21 08 85   OLD      ES 2   0
0 563 RT     244                         2  SC    ES     .   0 1548  21 08 85   OLD      ES 2   0
0 680 RT     218      105.                        ES     .           21 08 85   OLD      ES 2   0
0 641 RT     183.      60.               2  SC    ES     .           21 08 85   OLD      ES 2   0
0 672 RT     230      140                         ES     .   0 1589  21 08 85   OLD      ES 2   0
0 584 RT     261      240.               2  SC    ES     .   0 1580  21 08 85   OLD      ES 2   0
0 676 RT     239      180                         ES     .   0 1590  21 08 85   OLD      ES 2   0
0 667 RT     218      120                         ES     .           21 08 85   OLD      ES 2   0
0 556 RT     202                         2  SC    ES     .           21 08 85   OLD      ES 2   0
0 649 RT     125                                  ES     .           21 08 85   OLD      ES 2   0
0 553 RT     221      125.            .     SC    ES     .           21 08 85   OLD      ES 2   0
0 666 RT     273      240                         ES     .   0 1586  21 08 85   OLD      ES 2   0
0 567 RT      94                         1  SC    ES     .           21 08 85   OLD      ES 2   0
0 639 RT     198       80.            .     SC    ES     .           21 08 85   OLD      ES 2   0
0 587 RT     249      210.               2  SC    ES     .   0 1583  21 08 85   OLD      ES 2   0
0 668 RT     210      120                         ES     .           21 08 85   OLD      ES 2   0
0 545 RT     154         .               1  SC    ES     .           21 08 85   OLD      ES 2   0
0 647 RT     142         .               1  SC    ES     .           21 08 85   OLD      ES 2   0
0 601 RT     107       15.               1  SC    ES     .           21 08 85   OLD      ES 2   0
0 643 RT     196       95.               2  SC    ES     .           21 08 85   OLD      ES 2   0
0 564 RT     207         .               2  SC    ES     .           21 08 85   OLD      ES 2   0
0 651 RT     148.      40.                        ES     .           21 08 85   OLD      ES 2   0
0 586 RT     242.     185.            .  2  SO    ES     .   0 1562  21 08 85   OLD      ES 2   1
0 638 RT     230.     140.                  SC    ES     .   0 1579  21 08 85   OLD      ES 2   0
0 544 RT     133.        .               1  SC    ES     .           21 08 85   OLD      ES 2   0
0 646 RT      98.        .               1  SC    ES     .           21 08 85   OLD      ES 2   0
0 591 RT     247.     210.            .     SC    ES     .   0 1567  21 08 85   OLD      ES 2   0
0 642 RT     206.      90.            .     SC    ES     .           21 08 85   OLD      ES 2   0
0 566 RT     132.        .            .  1  SC    ES     .           21 08 85   OLD      ES 2   0
0 650 RT     100.        .            .           ES     .           21 08 85   OLD      ES 2   0
0 588 RT     307.     400.            .  3  SC    ES     .   0 1564  21 08 85   OLD      ES 2   0
0 640 RT     211.     110.            .  2  SC    ES     .           21 08 85   OLD      ES 2   0
0 599 RT     199.      80.            .  2  SC    ES     .           21 08 85   OLD      ES 2   0
0 648 RT     120.        .            .  1  SC    ES     .           21 08 85   OLD      ES 2   0
0 595 RT     183.      50.            .  2  SC    ES     .           21 08 85   OLD      ES 2   0
0 644 RT     187.      70.            .     SC    ES     .           21 08 85   OLD      ES 2   0
0 603 RT     104.      10.            .  1  SC    ES     .           21 08 85   OLD      ES 2   0
0 652 RT     185.      65.            .           ES     .           21 08 85   OLD      ES 2   0
0 590 RT     244.     185.            .     SC    ES     .   0 1566  21 08 85   OLD      ES 2   0
0 598 RT     202.      95.            .     SC    ES     .           21 08 85   OLD      ES 2   0
0 594 RT     240.     140.            .  2  SC    ES     .   0 1588  21 08 85   OLD      ES 2   0
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                                    RL&L ENVIRONMENTAL SERVICES LTD.
                               FISHERIES DATA - PRINT OUT BY LOCATION AND SITE
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 SAMPLE SP.   LENGTH  WEIGHT  SEX-  GONAD AGE AGE  CAPT MESH    TAG       DATE     LOCATION  SITE CAPT PRES      COMMENTS
   NO.         (MM)    (G)    MAT.  WT(G)     METH METH (CM)    NO.    DAY MO YR                   CODE CODE
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 D 802 RT      100.     10.             .   1  SC   ES     .            21 08 85   OLD       ES 2   0
 D 592 RT      214.    110.             .   2  SC   ES     .            21 08 85   OLD       ES 2   0
 D 600 RT      130.     25.             .   1  SC   ES     .            21 08 85   OLD       ES 2   0
 D 598 RT      110.     20.             .   1  SC   ES     .            21 08 85   OLD       ES 2   0
 D 604 RT      219.    140.    11       .   2  SD   ES     .            21 08 85   OLD       ES 2   1
 D1070 DV      381.    530.    11       .   3  SD   ES     .            03 10 85   OLD       DMP1   1          RUN # 2; ST-3RT JUV
 D1069 LING    735.       .             .           ES     .  D 7353    03 10 85   OLD       DMP1   0
 D1066 MW      275.    280.    17       .   3  SC   ES     .  D 7851    03 10 85   OLD       DMP1   0          RUN # 1
 D1067 MW      387.    620.     7       .   8  SC   ES     .  D 7852    03 10 85   OLD       DMP1   0          RUN # 2
 D1068 MW      265.    290.    18       .   4  SC   ES     .            03 10 85   OLD       DMP1   1
 D1063 RT      266.    280.             .   3  SC   ES     .  D 1750    03 10 85   OLD       DMP1   0
 D1065 RT      173.     60.             .      SC   ES     .            03 10 85   OLD       DMP1   0
 D1062 RT      365.    740.             .   2  SC   ES     .  D 1749    03 10 85   OLD       DMP1   0          RUN # 1
 D1064 RT      148.     40.             .      SC   ES     .            03 10 85   OLD       DMP1   0
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* FISHERIES DATA - PRINTOUT BY TAG NUMBER *
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                                     RLAL ENVIRONMENTAL SERVICES LTD.
                                FISHERIES DATA - PRINT OUT BY TAG NUMBER
                                ****************************************

SAMPLE SP.    LENGTH  WEIGHT  SEX-  GONAD AGE AGE   CAPT MESH     TAG        DATE     LOCATION  SITE CAPT PRES        COMMENTS
  NO.          (MM)    (G)    MAT.  WT(G)     METH  METH (CM)     NO.    DAY MO YR                     CODE CODE
----------------------------------------------------------------------------------------------------------------------------------------
0   30 MW      134.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   13 MW      122.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   93 MW      141.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0    5 MW      141.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   81 RT      214.       .           .     2   SC     ES    .               17 08 85   CAS       ES 1     0
0   21 LNS     385.       .    87     .                ES    .               17 08 85   CAS       ES 1     0
0  108 MW      141.       .           .                ES    .               17 08 85   CAS       ES 1     0
0    1 RT      211.       .    99     .     2   SC     ES    .               17 08 85   CAS       ES 1     0
0   45 MW      130.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   17 MW      178.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0  102 RT      215.       .           .         SC     ES    .               17 08 85   CAS       ES 1     0
0    9 MW      184.       .    99     .     2   SC     ES    .               17 08 85   CAS       ES 1     0
0   77 MW      214.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   28 DV      183.       .    99     .     2   SC     ES    .               17 08 85   CAS       ES 1     0
0  117 MW      126.       .           .                ES    .               17 08 85   CAS       ES 1     0
0    3 MW      148.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   38 RT      319.       .    99     .     2   SC     ES    .               17 08 85   CAS       ES 1     0
0   15 MW      115.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   97 MW      163.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0    8 DV      180.       .    99     .     1   SC     ES    .               17 08 85   CAS       ES 1     0
0   74 MW      235.       .           .                ES    .               17 08 85   CAS       ES 1     0
0   28 MW      231.       .           .                ES    .               17 08 85   CAS       ES 1     0
0  113 MW      219.       .           .                ES    .               17 08 85   CAS       ES 1     0
0    2 RT      115.       .    99     .     1   SC     ES    .               17 08 85   CAS       ES 1     0
0   53 DV      237.       .           .     2   SC     ES    .               17 08 85   CAS       ES 1     0
0   19 MW      125.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0  105 MW      201.       .           .                ES    .               17 08 85   CAS       ES 1     0
0   11 MW      118.       .    99     .     1   SC     ES    .               17 08 85   CAS       ES 1     0
0   85 MW      198.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   14 MW      124.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0  121 RT      121.       .           .     1   SC     ES    .               17 08 85   CAS       ES 1     0
0    4 MW      188.       .    99     .     2   SC     ES    .               17 08 85   CAS       ES 1     0
0   33 MW      131.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   18 MW      183.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   95 MW      138.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0    6 MW      133.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   67 RT      203.       .           .     2   SC     ES    .               17 08 85   CAS       ES 1     0
0   16 MW      155.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0  111 MW      156.       .           .                ES    .               17 08 85   CAS       ES 1     0
0   10 MW      185.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   49 MW      129.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   20 LNS     138.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0  107 MW      178.       .           .                ES    .               17 08 85   CAS       ES 1     0
0   12 MW      157.       .    99     .     2   SC     ES    .               17 08 85   CAS       ES 1     0
0   81 MW      186.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0  119 MW      147.       .           .                ES    .               17 08 85   CAS       ES 1     0
0   41 MW      225.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0  100 RT      220.       .           .     2   SC     ES    .               17 08 85   CAS       ES 1     0
0   76 MW      213.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0  115 MW      144.       .           .                ES    .               17 08 85   CAS       ES 1     0
0   57 MW      172.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0  106 MW      232.       .           .                ES    .               17 08 85   CAS       ES 1     0
0   89 MW      133.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0  118 MW      128.       .           .                ES    .               17 08 85   CAS       ES 1     0
0   31 MW      174.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   94 MW      169.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   63 MW       86.       .    99     .     0   LF     ES    .               17 08 85   CAS       ES 1     0
0  110 MW      154.       .           .                ES    .               17 08 85   CAS       ES 1     0
0   47 MW      133.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0  109 MW      186.       .           .                ES    .               17 08 85   CAS       ES 1     0
0   79 MW      221.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0  120 MW      118.       .           .                ES    .               17 08 85   CAS       ES 1     0
0   40 MW      228.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   96 MW      187.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   87 MW      131.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0  114 MW      188.       .           .                ES    .               17 08 85   CAS       ES 1     0
0   55 MW      230.       .           .     3   SC     ES    .               17 08 85   CAS       ES 1     0
0  112 MW      196.       .           .                ES    .               17 08 85   CAS       ES 1     0
0   83 MW      185.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0  116 MW      200.       .           .                ES    .               17 08 85   CAS       ES 1     0
0   35 MW      123.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   91 MW      125.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   51 MW       72.       .    99     .     0   LF     ES    .               17 08 85   CAS       ES 1     0
0   78 MW      202.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   43 MW      148.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   86 MW      220.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   59 RT      218.       .           .     2   SC     ES    .               17 08 85   CAS       ES 1     0
0   82 MW      218.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   32 MW      172.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   90 MW      147.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   46 MW      134.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   80 MW      180.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   42 MW      228.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   88 MW      142.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   54 RT      120.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   64 MW      198.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   34 MW      126.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   92 MW      150.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   50 MW       77.       .    99     .     0   LF     ES    .               17 08 85   CAS       ES 1     0
0   44 MW      145.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   58 MW      139.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   38 MW      150.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   48 MW      150.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   56 MW      178.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0   52 MW       72.       .    99     .     0   LF     ES    .               17 08 85   CAS       ES 1     0
0   60 MW      137.       .    99     .                ES    .               17 08 85   CAS       ES 1     0
0  157 MW      152.     50.           .     1   SC     ES    .               18 08 85   OLD       ES 1     0
0  125 RT      217.       .           .         SC     ES    .               18 08 85   OLD       ES 1     0
0  221 MW      157.     30.           .                ES    .               18 08 85   OLD       ES 1     0
0  142 RT      201.    100.           .         SC     ES    .               18 08 85   OLD       ES 1     0
0  169 MW      210.    140.           .                ES    .               18 08 85   OLD       ES 1     0
0  133 MW      183.       .           .                ES    .               18 08 85   OLD       ES 1     0
0  229 RT      181.       .           .                ES    .               18 08 85   OLD       ES 1     0
0  149 RT      174.       .           .                ES    .               18 08 85   OLD       ES 1     0
0  173 MW      171.       .           .                ES    .               18 08 85   OLD       ES 1     0
0  129 RT      177.       .           .     2   SC     ES    .               18 08 85   OLD       ES 1     0
0  225 MW      163.       .           .                ES    .               18 08 85   OLD       ES 1     0
0  185 RT      177.     60.           .     1   SC     ES    .               18 08 85   OLD       ES 1     0
0  205 RT      201.    130.           .                ES    .               18 08 85   OLD       ES 1     0
0  137 RT      132.       .           .         SC     ES    .               18 08 85   OLD       ES 1     0
0  223 MW      128.       .           .                ES    .               18 08 85   OLD       ES 1     0
0  153 RT      172.     70.           .         SC     ES    .               18 08 85   OLD       ES 1     0
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                         RL&L ENVIRONMENTAL SERVICES LTD.
                      FISHERIES DATA - PRINT OUT BY TAG NUMBER
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SAMPLE SP.  LENGTH  WEIGHT  SEX-  GONAD AGE AGE  CAPT MESH    TAG      DATE    LOCATION  SITE CAPT PRES       COMMENTS
  NO.        (MM)    (G)    MAT.  WT(G)     METH METH (CM)    NO.   DAY MO YR                 CODE CODE
---------------------------------------------------------------------------------------------------------------------------------------
D 155 MW      85.        .              .   0  LF   ES  .              18 08 85  OLD    ES 1   0
D 128 DV     209.        .              .   2  SC   ES  .              18 08 85  OLD    ES 1   0
D 227 RT     115.        .              .           ES  .              18 08 85  OLD    ES 1   0
D 143 RT     159.      45.              .      SC   ES  .              18 08 85  OLD    ES 1   0
D 197 RT     148.        .              .      SC   ES  .              18 08 85  OLD    ES 1   0
D 135 MW     141.        .              .           ES  .              18 08 85  OLD    ES 1   0
D 222 MW     155.        .              .           ES  .              18 08 85  OLD    ES 1   0
D 151 RT     204.     130.              .      SC   ES  .              18 08 85  OLD    ES 1   0
D 183 RT     218.     140.              .      SC   ES  .              18 08 85  OLD    ES 1   0
D 131 RT     120.        .              .   1  SC   ES  .              18 08 85  OLD    ES 1   0
D 229 MW     185.        .              .           ES  .              18 08 85  OLD    ES 1   0
D 147 RT     205.     130.              .      SC   ES  .              18 08 85  OLD    ES 1   0
D 213 RT     132.      20.              .           ES  .              18 08 85  OLD    ES 1   0
D 134 MW     144.        .              .           ES  .              18 08 85  OLD    ES 1   0
D 224 MW     134.        .              .           ES  .              18 08 85  OLD    ES 1   0
D 165 RT     183.      90.              .      SC   ES  .              18 08 85  OLD    ES 1   0
D 161 MW     158.      40.              .           ES  .              18 08 85  OLD    ES 1   0
D 136 MW     185.        .              .           ES  .              18 08 85  OLD    ES 1   0
D 228 RT     106.        .              .           ES  .              18 08 85  OLD    ES 1   0
D 144 RT     208.     100.              .      SC   ES  .              18 08 85  OLD    ES 1   0
D 193 MW     144.      20.              .           ES  .              18 08 85  OLD    ES 1   0
D 150 RT     186.      80.              .      SC   ES  .              18 08 85  OLD    ES 1   0
D 177 RT     217.     140.              .      SC   ES  .              18 08 85  OLD    ES 1   0
D 154 RT     196.      90.              .      SC   ES  .              18 08 85  OLD    ES 1   0
D 209 RT     204.     140.              .           ES  .              18 08 85  OLD    ES 1   0
D 152 RT     199.      90.              .      SC   ES  .              18 08 85  OLD    ES 1   0
D 169 RT     213.     140               .      SC   ES  .              18 08 85  OLD    ES 1   0
D 156 MW     204.     100.              .   2  SC   ES  .              18 08 85  OLD    ES 1   0
D 203 RT     214.     140               .      SC   ES  .              18 08 85  OLD    ES 1   0
D 185 RT     178.      60               .      SC   ES  .              18 08 85  OLD    ES 1   0
D 217 RT     192.                       .           ES  .              18 08 85  OLD    ES 1   0
D 159 MW     188.      75               .           ES  .              18 08 85  OLD    ES 1   0
D 191 MW     209.     110               .           ES  .              18 08 85  OLD    ES 1   0
D 175 RT     117.      20.              .      SC   ES  .              18 08 85  OLD    ES 1   0
D 207 RT     219.     150.              .           ES  .              18 08 85  OLD    ES 1   0
D 171 RT     161.      40               .      SC   ES  .              18 08 85  OLD    ES 1   0
D 198 MW     138.      30.              .           ES  .              18 08 85  OLD    ES 1   0
D 167 RT     140.      25               .      SC   ES  .              18 08 85  OLD    ES 1   0
D 215 RT     177.        .              .           ES  .              18 08 85  OLD    ES 1   0
D 163 MW     132.      25               .           ES  .              18 08 85  OLD    ES 1   0
D 195 MW     180.      60               .           ES  .              18 08 85  OLD    ES 1   0
D 178 RT     215.     130               .      SC   ES  .              18 08 85  OLD    ES 1   0
D 212 RT     172.      50.              .           ES  .              18 08 85  OLD    ES 1   0
D 170 RT     195.     100.              .      SC   ES  .              18 08 85  OLD    ES 1   0
D 190 MW     172.      40.              .           ES  .              18 08 85  OLD    ES 1   0
D 168 RT     125.      20.              .   1  SC   ES  .              18 08 85  OLD    ES 1   0
D 219 MW     211.     120.              .           ES  .              18 08 85  OLD    ES 1   0
D 158 MW     145.      30.              .           ES  .              18 08 85  OLD    ES 1   0
D 194 MW     141.      20               .           ES  .              18 08 85  OLD    ES 1   0
D 174 MW      83.        .              .   0  LF   ES  .              18 08 85  OLD    ES 1   0
D 206 RT     205.     125.              .           ES  .              18 08 85  OLD    ES 1   0
D 172 MW     152.        .              .           ES  .              18 08 85  OLD    ES 1   0
D 192 MW     143.      20.              .           ES  .              18 08 85  OLD    ES 1   0
D 182 MW     138.      25.              .           ES  .              18 08 85  OLD    ES 1   0
D 214 RT     128.        .              .           ES  .              18 08 85  OLD    ES 1   0
D 180 MW     157.      35.              .           ES  .              18 08 85  OLD    ES 1   0
D 196 MW     197.      80.              .           ES  .              18 08 85  OLD    ES 1   0
D 164 MW     150.      35.              .           ES  .              18 08 85  OLD    ES 1   0
D 208 RT     199.     110.              .           ES  .              18 08 85  OLD    ES 1   0
D 218 MW     246.        .              .           ES  .              18 08 85  OLD    ES 1   0
D 216 RT     133.        .              .           ES  .              18 08 85  OLD    ES 1   0
D 220 MW     182.      80.              .           ES  .              18 08 85  OLD    ES 1   0
D 285 MW     201.        .              .           ES  .              19 08 85  CRO    ES 1   0
D 255 MW     206.        .              .           ES  .              19 08 85  CRO    ES 1   0
D 413 MW     142.        .              .   1  SC   ES  .              19 08 85  CRO    ES 1   0
D 240 MW     194.      70.              .           ES  .              19 08 85  CRO    ES 2   0
D 349 MW     207.        .              .           ES  .              19 08 85  CRO    ES 1   0
D 271 RT     202.     140.              .      SC   ES  .              19 08 85  CRO    ES 1   0
D 417 MW     150.        .              .           ES  .              19 08 85  CRO    ES 1   0
D 231 MW     160.      50               .           ES  .              19 08 85  CRO    ES 2   0
D 322 MW     150.        .              .           ES  .              19 08 85  CRO    ES 1   0
D 261 MW     152.        .              .           ES  .              19 08 85  CRO    ES 1   0
D 415 MW     148.        .              .           ES  .              19 08 85  CRO    ES 1   0
D 245 MW     200.     100.              .           ES  .              19 08 85  CRO    ES 1   0
D 381 MW     186.        .              .           ES  .              19 08 85  CRO    ES 1   0
D 277 MW     228.     180.              .           ES  .              19 08 85  CRO    ES 1   0
D 414 MW     151.        .              .           ES  .              19 08 85  CRO    ES 1   0
D 232 MW     190.      90.              .           ES  .              19 08 85  CRO    ES 2   0
D 301 MW     209.        .              .           ES  .              19 08 85  CRO    ES 1   0
D 257 MW     173.        .              .           ES  .              19 08 85  CRO    ES 1   0
D 416 MW     150.        .              .           ES  .              19 08 85  CRO    ES 1   0
D 241 MW     192.      70               .           ES  .              19 08 85  CRO    ES 2   0
D 365 MW     219.     180.              .   2  SC   ES  .              19 08 85  CRO    ES 1   0
D 272 RT     140.      40.              .   1  SC   ES  .              19 08 85  CRO    ES 1   0
D 334 MW     183.        .              .           ES  .              19 08 85  CRO    ES 1   0
D 249 MW     204.     120.              .           ES  .              19 08 85  CRO    ES 1   0
D 402 MW     209.     130               .   2  SC   ES  .              19 08 85  CRO    ES 1   0
D 265 MW     204.        .              .           ES  .              19 08 85  CRO    ES 1   0
D 293 MW     180.        .              .           ES  .              19 08 85  CRO    ES 1   0
D 243 MW     213.     140.              .           ES  .              19 08 85  CRO    ES 1   0
D 357 MW     140.        .              .           ES  .              19 08 85  CRO    ES 1   0
D 281 MW     208.     100.              .           ES  .              19 08 85  CRO    ES 1   0
D 325 MW     179.        .              .           ES  .              19 08 85  CRO    ES 1   0
D 247 MW     171.      70.              .           ES  .              19 08 85  CRO    ES 1   0
D 383 MW     151.        .              .           ES  .              19 08 85  CRO    ES 1   0
D 256 MW     244.        .              .           ES  .              19 08 85  CRO    ES 1   0
D 309 MW     211.     130.     11       .   2  SC   ES  .              19 08 85  CRO    ES 1   0
D 242 MW     214.     140.              .           ES  .              19 08 85  CRO    ES 1   0
D 375 RT     150.      50.              .   1  SC   ES  .              19 08 85  CRO    ES 1   0
D 279 MW     221.     180.              .           ES  .              19 08 85  CRO    ES 1   0
D 341 MW     181.        .              .           ES  .              19 08 85  CRO    ES 1   0
D 251 MW     212.     110.              .           ES  .              19 08 85  CRO    ES 1   0
D 405 MW     225.        .              .      SC   ES  .              19 08 85  CRO    ES 1   0
D 263 MW     231.        .              .           ES  .              19 08 85  LRO    ES 1   0
D 289 MW     212.     140.              .           ES  .              19 08 85  CRO    ES 1   0
D 248 MW     180.      60.              .           ES  .              19 08 85  CRO    ES 1   0
D 353 MW     143.        .              .           ES  .              19 08 85  CRO    ES 1   0
D 283 MW     203.      90.              .           ES  .              19 08 85  CRO    ES 1   0
D 323 MW     151.        .              .           ES  .              19 08 85  CRO    ES 1   0
D 350 MW     181.      30.              .           ES  .              19 08 85  CRO    ES 1   0
D 382 MW     185.        .              .           ES  .              19 08 85  CRO    ES 1   0
D 259 MW     208.        .              .           ES  .              19 08 85  CRO    ES 1   0
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                              RL&L ENVIRONMENTAL SERVICES LTD.
                          FISHERIES DATA - PRINT OUT BY TAG NUMBER
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SAMPLE SP.   LENGTH  WEIGHT  SEX-  GONAD AGE AGE  CAPT MESH    TAG       DATE    LOCATION  SITE CAPT PRES       COMMENTS
  NO.         (MM)    (G)    MAT.  WT(G)     METH METH (CM)    NO.   DAY MO YR                  CODE CODE
.....................................................................................................................
0 305 RT     205.    100.            .        SC   ES    .              19 08 85  CRO       ES 1    0
0 252 MW     122.     20.            .             ES    .              19 08 85  CRO       ES 1    0
0 367 RT     185.     80.            .        SC   ES    .              19 08 85  CRO       ES 1    0
0 276 MW     225.    180.            .             ES    .              19 08 85  CRO       ES 1    0
0 337 MW     158.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 287 MW     186.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 403 MW     138.     70.            .     1  SC   ES    .              19 08 85  CRO       ES 1    0
0 282 MW     210. [illegible]        .             ES    .              19 08 85  CRO       ES 1    0
0 297 MW     183.     20.            .             ES    .              19 08 85  CRO       ES 1    0
0 258 MW     220.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 361 BNT    448.   1180.    14      .     3  SC   ES    .              19 08 85  CRO       ES 1    0
0 280 MW     226.    170.            .             ES    .              19 08 85  CRO       ES 1    0
0 329 MW     200.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 262 MW     171.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 384 MW     151.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 284 MW     213.    120.            .             ES    .              19 08 85  CRO       ES 1    0
0 313 MW     150.     40.            .        SC   ES    .              19 08 85  CRO       ES 1    0
0 260 MW     163.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 377 RT     183.     80.            .        SC   ES    .              19 08 85  CRO       ES 1    0
0 266 MW     221.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 345 MW     160.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 264 MW     199.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 409 MW     149.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 268 MW     169.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 287 MW     220.    150.            .             ES    .              19 08 85  CRO       ES 1    0
0 351 MW     173.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 324 MW     214.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 404 MW     141.     35.            .             ES    .              19 08 85  CRO       ES 1    0
0 303 MW     215.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 366 RT     203.    110.            .        SC   ES    .              19 08 85  CRO       ES 1    0
0 335 MW     177.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 407 MW     149.     50.            .     1  SC   ES    .              19 08 85  CRO       ES 1    0
0 295 MW     171.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 359 MW     148.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 327 MW     188.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 411 MW     151.       .            .     1  SC   ES    .              19 08 85  CRO       ES 1    0
0 311 MW     175.     70.     1      .     1  SC   ES    .              19 08 85  CRO       ES 1    0
0 376 RT     200.    100             .        SC   ES    .              19 08 85  CRO       ES 1    0
0 343 MW     142.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 406 MW     165      60             .        SC   ES    .              19 08 85  CRO       ES 1    0
0 291 MW     182.    100.            .             ES    .              19 08 85  CRO       ES 1    0
0 355 MW     131.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 331 MW     159.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 410 MW     153.     30.            .             ES    .              19 08 85  CRO       ES 1    0
0 307 MW     136.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 388 RT     229.     80.            .     1  SC   ES    .              19 08 85  CRO       ES 1    0
0 339 MW     140.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 408 MW     148.       .            .     1  SC   ES    .              19 08 85  CRO       ES 1    0
0 299 MW     211.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 358 MW     145.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 326 MW     151.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 412 MW     138.     30.            .             ES    .              19 08 85  CRO       ES 1    0
0 315 MW     141.     25.            .        SC   ES    .              19 08 85  CRO       ES 1    0
0 379 RT     206.    100.            .        SC   ES    .              19 08 85  CRO       ES 1    0
0 347 MW     203.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 350 MW     155.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 286 MW     216.    140.            .             ES    .              19 08 85  CRO       ES 1    0
0 378 RT     163.     35.            .     1  SC   ES    .              19 08 85  CRO       ES 1    0
0 330 MW     146.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 354 MW     152.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 302 MW     218.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 380 MW     205.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 336 MW     159.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 352 MW     187.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 294 MW     210.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 356 MW     152.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 328 MW     207.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 310 MW     204.    110.    11      .     2  SC   ES    .              19 08 85  CRO       ES 1    0
0 342 MW     206.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 290 MW     184.    100.            .             ES    .              19 08 85  CRO       ES 1    0
0 332 MW     155.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 308 MW     250.    210.    16      .        SC   ES    .              19 08 85  CRO       ES 1    0
0 338 MW     149.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 298 MW     160.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 346 MW     153.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 314 MW     148.     40.            .        SC   ES    .              19 08 85  CRO       ES 1    0
0 340 MW     185.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 288 MW     204.    110.            .             ES    .              19 08 85  CRO       ES 1    0
0 344 MW     151.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 304 MW     144.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 348 MW     182.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 296 MW     209.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 312 MW     156.     40.    99      .     1  SC   ES    .              19 08 85  CRO       ES 1    0
0 292 RT     150.     50.            .        SC   ES    .              19 08 85  CRO       ES 1    0
0 300 MW     202.       .            .             ES    .              19 08 85  CRO       ES 1    0
0 479 MW     347.    720.            .     6  SC   ES    .              20 08 85  CRO       ES 3    0
0 445 RT     212.    105.            .        SC   ES    .              20 08 85  CRO       ES 3    0
0 514 BNT    219.    140.            .     1  SC   ES    .              20 08 85  CRO       ES 3    0
0 429 MW     258.       .            .             ES    .              20 08 85  CRO       ES 3    0
0 496 RT     174.     65.            .     1  SC   ES    .              20 08 85  CRO       ES 3    0
0 481 MW     195.    100.            .             ES    .              20 08 85  CRO       ES 3    0
0 525 MW     225.    185.            .             ES    .              20 08 85  CRO       ES 3    0
0 421 MW     250.       .            .             ES    .              20 08 85  CRO       ES 3    0
0 485 RT     203.    130.            .        SC   ES    .              20 08 85  CRO       ES 3    0
0 453 MW     335.    490.            .     5  SC   ES    .              20 08 85  CRO       ES 3    0
0 517 RT     188.     95.            .     1  SC   ES    .              20 08 85  CRO       ES 3    0
0 437 MW     210.       .            .             ES    .              20 08 85  CRO       ES 3    0
0 487 RT     180.     70.            .     1  SC   ES    .              20 08 85  CRO       ES 3    0
0 469 RT     177.     90.            .     1  SC   ES    .              20 08 85  CRO       ES 3    0
0 515 BNT    203.    110.            .     1  SC   ES    .              20 08 85  CRO       ES 3    0
0 425 MW     236.       .            .             ES    .              20 08 85  CRO       ES 3    0
0 484 RT     312.    480.            .     2  SC   ES    .              20 08 85  CRO       ES 3    0
0 449 MW     214.    130.            .             ES    .              20 08 85  CRO       ES 3    0
0 516 RT     169.     35.            .     1  SC   ES    .              20 08 85  CRO       ES 3    0
0 433 MW     277.       .            .             ES    .              20 08 85  CRO       ES 3    0
0 498 RT     209.    145.            .        SC   ES    .              20 08 85  CRO       ES 3    0
0 466 MW     314.    440.            .     5  SC   ES    .              20 08 85  CRO       ES 3    0
0 488 RT     206.    135.            .             ES    .              20 08 85  CRO       ES 3    0
0 423 MW     284.       .            .             ES    .              20 08 85  CRO       ES 3    0
0 460 MW     333.    540.            .     5  SC   ES    .              20 08 85  CRO       ES 3    0
0 457 MW     267.    230.            .             ES    .              20 08 85  CRO       ES 3    0
0 441 MW     221.       .            .             ES    .              20 08 85  CRO       ES 3    0
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RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY TAG NUMBER

SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY	MO	YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
D 471	RT	185.	80.		.	1	SC	ES	.		20	08	85	CRO	ES 3	0		
D 427	MW	220.	.		.			ES	.		20	08	85	CRO	ES 3	0		
D 447	RT	202.	100.		.		SC	ES	.		20	08	85	CRO	ES 3	0		
D 431	MW	207.	.		.			ES	.		20	08	85	CRO	ES 3	0		
D 463	RT	304.	400.		.	3	SC	ES	.		20	08	85	CRO	ES 3	0		
D 422	MW	222.	.		.			ES	.		20	08	85	CRO	ES 3	0		
D 455	MW	282.	300.		.			ES	.		20	08	85	CRO	ES 3	0		
D 439	MW	285.	.		.			ES	.		20	08	85	CRO	ES 3	0		
D 470	RT	238.	180.		.	2	SC	ES	.		20	08	85	CRO	ES 3	0		
D 426	MW	204.	.		.			ES	.		20	08	85	CRO	ES 3	0		
D 451	MW	207.	115.		.			ES	.		20	08	85	CRO	ES 3	0		
D 435	MW	225.	.		.			ES	.		20	08	85	CRO	ES 3	0		
D 467	MW	224.	150.		.			ES	.		20	08	85	CRO	ES 3	0		
D 424	MW	234.	.		.			ES	.		20	08	85	CRO	ES 3	0		
D 459	MW	186.	80.		.			ES	.		20	08	85	CRO	ES 3	0		
D 443	RT	257.	225.		.		SC	ES	.		20	08	85	CRO	ES 3	0		
D 462	MW	220.	130.		.			ES	.		20	08	85	CRO	ES 3	0		
D 428	MW	235.	.		.			ES	.		20	08	85	CRO	ES 3	0		
D 446	RT	288.	280.		.		SC	ES	.		20	08	85	CRO	ES 3	0		
D 430	MW	233.	.		.			ES	.		20	08	85	CRO	ES 3	0		
D 468	RT	218.	155.		.	2	SC	ES	.		20	08	85	CRO	ES 3	0		
D 438	MW	221.	.		.			ES	.		20	08	85	CRO	ES 3	0		
D 454	MW	248.	210.		.			ES	.		20	08	85	CRO	ES 3	0		
D 434	MW	264.	.		.			ES	.		20	08	85	CRO	ES 3	0		
D 450	MW	227.	160.		.			ES	.		20	08	85	CRO	ES 3	0		
D 442	RT	281.	270.		.	2	SC	ES	.		20	08	85	CRO	ES 3	0		
D 458	MW	276.	240.		.			ES	.		20	08	85	CRO	ES 3	0		
D 432	MW	233.	.		.			ES	.		20	08	85	CRO	ES 3	0		
D 448	MW	228.	180.		.			ES	.		20	08	85	CRO	ES 3	0		
D 440	MW	200.	.		.			ES	.		20	08	85	CRO	ES 3	0		
D 456	MW	313.	390.		.	4	SC	ES	.		20	08	85	CRO	ES 3	0		
D 436	MW	231.	.		.			ES	.		20	08	85	CRO	ES 3	0		
D 452	MW	278.	250.		.			ES	.		20	08	85	CRO	ES 3	0		
D 444	RT	196.	115.		.	1	SC	ES	.		20	08	85	CRO	ES 3	0		
D 460	MW	271.	235.		.			ES	.		20	08	85	CRO	ES 3	0		
D 541	RT	199.	.		.	2	SC	ES	.		21	08	85	OLD	ES 2	0		
D 537	MW	194.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 669	RT	211.	130.		.			ES	.		21	08	85	OLD	ES 2	0		
D 539	MW	221.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 614	MW	287.	250.		.			ES	.		21	08	85	OLD	ES 2	0		
D 538	MW	180.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 690	MW	187.	70.		.			ES	.		21	08	85	OLD	ES 2	0		
D 540	RT	221.	.		.	2	SC	ES	.		21	08	85	OLD	ES 2	0		
D 576	MW	233.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 677	RT	141.	30.		.			ES	.		21	08	85	OLD	ES 2	0		
D 639	RT	188.	80.		.		SC	ES	.		21	08	85	OLD	ES 2	0		
D 693	MW	260.	210.		.			ES	.		21	08	85	OLD	ES 2	0		
D 557	MW	192.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 673	RT	185.	70.		.			ES	.		21	08	85	OLD	ES 2	0		
D 621	MW	145.	40.		.			ES	.		21	08	85	OLD	ES 2	0		
D 691	MW	150.	30.		.			ES	.		21	08	85	OLD	ES 2	0		
D 592	RT	214.	110.		.	2	SC	ES	.		21	08	85	OLD	ES 2	0		
D 681	RT	135.	30.		.			ES	.		21	08	85	OLD	ES 2	0		
D 659	MW	141.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 697	MW	167.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 553	MW	136.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 675	RT	206.	130.		.			ES	.		21	08	85	OLD	ES 2	0		
D 617	MW	259.	220.		.			ES	.		21	08	85	OLD	ES 2	0		
D 692	MW	213.	110.		.			ES	.		21	08	85	OLD	ES 2	0		
D 581	MW	188.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 679	RT	130.	25.		.			ES	.		21	08	85	OLD	ES 2	0		
D 645	RT	119.	.		.	1	SC	ES	.		21	08	85	OLD	ES 2	0		
D 695	MW	128.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 565	RT	158.	.		.	1	SC	ES	.		21	08	85	OLD	ES 2	0		
D 674	RT	215.	110.		.			ES	.		21	08	85	OLD	ES 2	0		
D 630	MW	188.	110.		.			ES	.		21	08	85	OLD	ES 2	0		
D 684	MW	136.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 597	RT	182.	80.		.	2	SC	ES	.		21	08	85	OLD	ES 2	0		
D 683	RT	110.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 661	MW	130.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 696	MW	139.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 545	RT	154.	.		.	1	SC	ES	.		21	08	85	OLD	ES 2	0		
D 678	RT	185.	60.		.			ES	.		21	08	85	OLD	ES 2	0		
D 615	MW	235.	155.		.			ES	.		21	08	85	OLD	ES 2	0		
D 680	RT	218.	105.		.			ES	.		21	08	85	OLD	ES 2	0		
D 577	MW	230.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 641	RT	183.	60.		.	2	SC	ES	.		21	08	85	OLD	ES 2	0		
D 561	MW	141.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 623	MW	148.	40.		.			ES	.		21	08	85	OLD	ES 2	0		
D 593	RT	221.	125.		.		SC	ES	.		21	08	85	OLD	ES 2	0		
D 660	MW	187.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 555	MW	191.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 619	MW	208.	115.		.			ES	.		21	08	85	OLD	ES 2	0		
D 585	RT	231.	175.		.	2	SC	ES	.		21	08	85	OLD	ES 2	0		
D 649	RT	125.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 567	RT	94.	.		.	1	SC	ES	.		21	08	85	OLD	ES 2	0		
D 633	MW	147.	40.		.			ES	.		21	08	85	OLD	ES 2	0		
D 601	RT	107.	15.		.	1	SC	ES	.		21	08	85	OLD	ES 2	0		
D 665	RT	192.	95.		.			ES	.		21	08	85	OLD	ES 2	0		
D 543	MW	83.	.		.	0	LF	ES	.		21	08	85	OLD	ES 2	0		
D 616	MW	266.	235.		.			ES	.		21	08	85	OLD	ES 2	0		
D 579	MW	225.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 640	RT	211.	110.		.	2	SC	ES	.		21	08	85	OLD	ES 2	0		
D 559	MW	131.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 622	MW	157.	40.		.			ES	.		21	08	85	OLD	ES 2	0		
D 595	RT	183.	50.		.	2	SC	ES	.		21	08	85	OLD	ES 2	0		
D 664	RT	222.	135.		.			ES	.		21	08	85	OLD	ES 2	0		
D 554	MW	136.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 618	MW	253.	225.		.			ES	.		21	08	85	OLD	ES 2	0		
D 583	MW	80.	.	33	.	0	LF	ES	.		21	08	85	OLD	ES 2	0		
D 647	RT	142.	.		.	1	SC	ES	.		21	08	85	OLD	ES 2	0		
D 566	RT	132.	.		.	1	SC	ES	.		21	08	85	OLD	ES 2	0		
D 631	MW	180.	70.		.			ES	.		21	08	85	OLD	ES 2	0		
D 599	RT	189.	80.		.	2	SC	ES	.		21	08	85	OLD	ES 2	0		
D 667	RT	218.	120.		.			ES	.		21	08	85	OLD	ES 2	0		
D 542	MW	175.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 620	MW	230.	180.		.			ES	.		21	08	85	OLD	ES 2	0		
D 578	MW	251.	.		.			ES	.		21	08	85	OLD	ES 2	0		
D 643	RT	186.	95.		.	2	SC	ES	.		21	08	85	OLD	ES 2	0		
D 564	RT	207.	.		.	2	SC	ES	.		21	08	85	OLD	ES 2	0		
D 624	MW	194.	85.		.			ES	.		21	08	85	OLD	ES 2	0		
D 588	RT	110.	20.		.	1	SC	ES	.		21	08	85	OLD	ES 2	0		

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                                   RL&L ENVIRONMENTAL SERVICES LTD.
                                FISHERIES DATA - PRINT OUT BY TAG NUMBER
                                ****************************************

SAMPLE SP.   LENGTH   WEIGHT  SEX-  GONAD AGE AGE  CAPT MESH    TAG       DATE    LOCATION  SITE CAPT PRES       COMMENTS
  NO.         (MM)     (G)    MAT.  WT(G)     METH METH (CM)    NO.   DAY MO YR                  CODE CODE
------------------------------------------------------------------------------------------------------------------------------------
0 862 MW    141.        .            .           ES    .          21 08 85  OLD    ES 2   0
0 558 RT    202.        .            .   2  SC   ES    .          21 08 85  OLD    ES 2   0
0 835 MW    140.      25.            .           ES    .          21 08 85  OLD    ES 2   0
0 580 MW    228.        .            .           ES    .          21 08 85  OLD    ES 2   0
0 651 RT    148.      40.            .           ES    .          21 08 85  OLD    ES 2   0
0 558 MW    133.        .            .           ES    .          21 08 85  OLD    ES 2   0
0 632 MW    220.     130.            .           ES    .          21 08 85  OLD    ES 2   0
0 603 RT    104.      10.            .   1  SC   ES    .          21 08 85  OLD    ES 2   0
0 668 RT    210.     120.            .           ES    .          21 08 85  OLD    ES 2   0
0 544 RT    133.        .            .   1  SC   ES    .          21 08 85  OLD    ES 2   0
0 634 MW    134.      20.            .           ES    .          21 08 85  OLD    ES 2   0
0 598 RT    202.      95.            .      SC   ES    .          21 08 85  OLD    ES 2   0
0 642 RT    208.      90.            .      SC   ES    .          21 08 85  OLD    ES 2   0
0 562 MW    188.        .            .           ES    .          21 08 85  OLD    ES 2   0
0 646 RT     98.        .            .   1  SC   ES    .          21 08 85  OLD    ES 2   0
0 602 RT    100.      10.            .   1  SC   ES    .          21 08 85  OLD    ES 2   0
0 644 RT    187.      70.            .      SC   ES    .          21 08 85  OLD    ES 2   0
0 560 MW    134.        .            .           ES    .          21 08 85  OLD    ES 2   0
0 650 RT    100.        .            .           ES    .          21 08 85  OLD    ES 2   0
0 600 RT    130.      25.            .   1  SC   ES    .          21 08 85  OLD    ES 2   0
0 648 RT    120.        .            .   1  SC   ES    .          21 08 85  OLD    ES 2   0
0 652 RT    185.      65.            .           ES    .          21 08 85  OLD    ES 2   0
0 806 MW    300.     350.            .           ES    .          21 08 85  OLD    ES 2   0
0 734 MW     83.        .            .   0  LF   ES    .          22 08 85  CRO    ES 2   0
0 838 RT    204.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 710 BNT   218.     140.            .   1  SC   ES    .          22 08 85  CRO    ES 2   0
0 818 RT    209.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 765 MW    225.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 847 MW    278.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 717 MW    234.     170.            .           ES    .          22 08 85  CRO    ES 2   0
0 821 MW    373.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 759 MW    219.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 843 MW    140.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 715 MW    219.     140.            .           ES    .          22 08 85  CRO    ES 2   0
0 817 MW     98.        .            .   0  LF   ES    .          22 08 85  CRO    ES 2   0
0 761 RT    221.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 849 MW    214.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 729 RT    188.     105.            .   1  SC   ES    .          22 08 85  CRO    ES 2   0
0 825 MW    367.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 737 MW     92.        .            .   0  LF   ES    .          22 08 85  CRO    ES 2   0
0 848 MW    183.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 711 RT    190.      85             .   1  SC   ES    .          22 08 85  CRO    ES 2   0
0 819 MW     93.        .            .   0  LF   ES    .          22 08 85  CRO    ES 2   0
0 778 RT    208.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 850 MW    134.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 722 MW    175.      60.            .           ES    .          22 08 85  CRO    ES 2   0
0 823 MW    318.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 761 MW    207.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 818 MW     94.        .            .   0  LF   ES    .          22 08 85  CRO    ES 2   0
0 716 MW    228.     160.            .           ES    .          22 08 85  CRO    ES 2   0
0 826 MW    238.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 788 MW    191         .            .           ES    .          22 08 85  CRO    ES 2   0
0 822 MW    308.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 732 RT    170.      70.            .   1  SC   ES    .          22 08 85  CRO    ES 2   0
0 824 MW    271.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 735 MW     90.        .            .   0  LF   ES    .          22 08 85  CRO    ES 2   0
0 712 RT    208      130.            .   1  SC   ES    .          22 08 85  CRO    ES 2   0
0 767 MW    173.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 718 MW    219.     160.            .           ES    .          22 08 85  CRO    ES 2   0
0 760 MW    220.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 723 MW    203.      90.            .           ES    .          22 08 85  CRO    ES 2   0
0 780 RT    204.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 738 MW     95.        .            .   0  LF   ES    .          22 08 85  CRO    ES 2   0
0 786 MW    183.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 763 MW    218.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 768 MW    148.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 782 MW    173.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 784 MW    194.        .            .           ES    .          22 08 85  CRO    ES 2   0
0 861 RT    155.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 854 RT    200         .            .           ES    .          20 09 85  CRO    CNP3   0
0 893 RT    240.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 857 RT    230.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 877 RT    281.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 855 MW    245.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 913 RT    207.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 859 RT    248.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 869 RT    299.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 856 RT     83.        .            .   0  LF   ES    .          20 09 85  CRO    CNP3   0
0 901 RT    189.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 858 BNT   283.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 866 BNT   415.        .   7        .           ES    .          20 09 85  CRO    CNP3   0
0 860 BNT   258.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 917 RT    209.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 865 RT    231.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 897 RT    191.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 881 RT    195.        .            .           ES    .          20 09 85  CRO    CNP3   0              END RUN # 1
0 919 RT    225.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 873 RT    220         .            .           ES    .          20 09 85  CRO    CNP3   0
0 904 RT    219.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 889 BNT   342.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 895 RT    235.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 863 RT    493.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 900 RT    215.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 878 RT    342.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 894 BNT   233.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 871 BNT   257.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 896 RT    224.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 887 RT    227.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 867 RT    333.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 883 BNT   231.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 875 RT    445.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 891 RT    215.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 862 RT     88.        .            .   0  LF   ES    .          20 09 85  CRO    CNP3   0
0 880 RT    208.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 870 RT    298.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 888 RT    240.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 886 RT    272.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 882 RT    197.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 874 RT    445.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 890 RT    381.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 884 RT    325.        .            .           ES    .          20 09 85  CRO    CNP3   0
0 884 BNT   280.        .            .           ES    .          20 09 85  CRO    CNP3   0
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                              RL&L ENVIRONMENTAL SERVICES LTD.
                           FISHERIES DATA - PRINT OUT BY TAG NUMBER
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SAMPLE SP.   LENGTH   WEIGHT SEX- GONAD AGE AGE  CAPT MESH     TAG      DATE    LOCATION  SITE CAPT PRES       COMMENTS
  NO.         (MM)     (G)   MAT. WT(G)     METH METH (CM)     NO.  DAY MO YR                 CODE CODE
------------------------------------------------------------------------------------------------------------------------
0 872 RT      285.        .           .             ES      .       20 09 85  CRO    CNP3    0
0 868 RT      283.        .           .             ES      .       20 09 85  CRO    CNP3    0
0 876 RT      351.        .           .             ES      .       20 09 85  CRO    CNP3    0
0 940 RT      171.        .           .             ES      .       21 09 85  CRO    CNP3    0
0 957 RT      345.        .           .             ES      .       21 09 85  CRO    CNP3    0
0 942 RT      176.        .           .             ES      .       21 09 85  CRO    CNP3    0
0 973 RT      221.        .           .             ES      .       21 09 85  CRO    CNP3    0
0 951 RT      131.        .           .             ES      .       21 09 85  CRO    CNP3    0
0 966 RT      186.        .           .             ES      .       21 09 85  CRO    CNP3    0
0 955 RT      216.        .           .             ES      .       21 09 85  CRO    CNP3    0
0 976 RT       92.        .           .    0  LF    ES      .       21 09 85  CRO    CNP3    0           END RUN # 3
0 952 RT      210.        .           .             ES      .       21 09 85  CRO    CNP3    0
0 964 RT      213.        .           .             ES      .       21 09 85  CRO    CNP3    0
0 956 RT      134.        .           .             ES      .       21 09 85  CRO    CNP3    0
0 972 RT      215.        .           .             ES      .       21 09 85  CRO    CNP3    0
0 981 MW      188.        .           .             ES      .       22 09 85  CAS    CAP1    0
0 977 MW      287.        .           .             ES      .       22 09 85  CAS    CAP1    0
0 979 DV      206.        .           .             ES      .       22 09 85  CAS    CAP1    0
0 978 RT      197.        .           .             ES      .       22 09 85  CAS    CAP1    0
0 980 RT      169.        .           .             ES      .       22 09 85  CAS    CAP1    0
0 989 RT      182.        .           .             ES      .       24 09 85  CRO    CNP3    0
0 988 RT      205.        .           .             ES      .       24 09 85  CRO    CNP3    0
01022 RT      181.        .           .             ES      .       24 09 85  CAS    CAP1    0
01010 RT      219.        .           .             ES      .       24 09 85  CRO    CNP3    0
01023 RT      189.        .           .             ES      .       24 09 85  CAS    CAP1    0
0 998 RT      214.        .           .             ES      .       24 09 85  CRO    CNP3    0
01018 RT      211.        .           .             ES      .       24 09 85  CAS    CAP1    0
0 993 RT      155.        .           .             ES      .       24 09 85  CRO    CNP3    0
01019 RT      128.        .           .             ES      .       24 09 85  CAS    CAP1    0
01001 RT      215.        .           .             ES      .       24 09 85  CRO    CNP3    0
0 991 RT      218.        .           .             ES      .       24 09 85  CRO    CNP3    0
01003 RT      208.        .           .             ES      .       24 09 85  CRO    CNP3    0
0 990 BNT     203.        .           .             ES      .       24 09 85  CRO    CNP3    0
01002 RT      211.        .           .             ES      .       24 09 85  CRO    CNP3    0
01029 RT      142.        .           .             ES      .       26 09 85  CAS    CAP1    0
01025 RT       98.        .           .             ES      .       26 09 85  CAS    CAP1    0
01033 RT      140.        .           .             ES      .       26 09 85  CAS    CAP1    0
01024 RT      147.        .           .             ES      .       26 09 85  CAS    CAP1    0
01031 RT      139.        .           .             ES      .       26 09 85  CAS    CAP1    0
01027 RT      131.        .           .             ES      .       26 09 85  CAS    CAP1    0
01034 RT      136.        .           .             ES      .       26 09 85  CAS    CAP1    0
01026 RT      120.        .           .             ES      .       26 09 85  CAS    CAP1    0
01030 RT      126.        .           .             ES      .       26 09 85  CAS    CAP1    0
01028 RT       97.        .           .             ES      .       26 09 85  CAS    CAP1    0
01032 RT      138.        .           .             ES      .       26 09 85  CAS    CAP1    0
01063 MW      143.        .           .             ES      .       02 10 85  CRO    CNP1    0
01037 RT       75.        .           .    0  LF    ES      .       02 10 85  CRO    CNP2    0
01061 RT       72.        .           .    0  LF    ES      .       02 10 85  CRO    CNP1    0
01045 MW      162.        .           .             ES      .       02 10 85  CRO    CNP1    0
01058 MW      110.        .           .    0  LF    ES      .       02 10 85  CRO    CNP1    0
01041 RT      210.        .           .    2  SC    ES      .       02 10 85  CRO    CNP1    0
01055 MW      185.        .           .             ES      .       02 10 85  CRO    CNP1    0
01047 MW      108.        .           .    0  LF    ES      .       02 10 85  CRO    CNP1    0
01056 MW      152.        .           .    1  SC    ES      .       02 10 85  CRO    CNP1    0
01043 MW      143.        .           .             ES      .       02 10 85  CRO    CNP1    0
01046 MW      141.        .           .             ES      .       02 10 85  CRO    CNP1    0
01044 MW      160.        .           .             ES      .       02 10 85  CRO    CNP1    0
01065 RT      173.      60.           .       SC    ES      .       03 10 85  OLD    OMP1    0
01064 RT      149.      40.           .       SC    ES      .       03 10 85  OLD    OMP1    0
01162 RT      205.      90.           .             ES      .       04 10 85  CRO    ES 1    0
01124 RT      163.      60.           .             ES      .       04 10 85  CRO    ES 2    0
01202 DV      202.      80.           .             ES      .       04 10 85  CRO    ES 1    0
01085 RT      137.      20.   99      .    1  SC    ES      .       04 10 85  CRO    ES 2    0
01169 MW      148.        .           .             ES      .       04 10 85  CRO    ES 1    0
01149 RT      167.      40.           .    1  SC    ES      .       04 10 85  CRO    ES 1    0
01185 RT      211.     110.           .             ES      .       04 10 85  CRO    ES 1    0
01081 MW      235.     160.           .             ES      .       04 10 85  CRO    ES 2    0
01186 MW      240.     190.           .             ES      .       04 10 85  CRO    ES 1    0
01134 MW      239.     180.    7      .             ES      .       04 10 85  CRO    ES 2    0
01107 RT      207.     110.           .    1  SC    ES      .       04 10 85  CRO    ES 2    0
01166 MW      238.        .    7      .             ES      .       04 10 85  CRO    ES 1    0
01084 MW      236.     175.           .             ES      .       04 10 85  CRO    ES 2    0
01143 MW      259.     280.           .             ES      .       04 10 85  CRO    ES 2    0
01095 BNT     111.        .           .    0  SC    ES      .       04 10 85  CRO    ES 2    0
01157 MW      212.     130.           .             ES      .       04 10 85  CRO    ES 1    0
01082 MW      260.     220.           .             ES      .       04 10 85  CRO    ES 2    0
01135 MW      249.     220.   17      .             ES      .       04 10 85  CRO    ES 2    0
01108 DV      198.      80.           .    2  SC    ES      .       04 10 85  CRO    ES 2    0
01173 MW      238.     170.    7      .             ES      .       04 10 85  CRO    ES 1    0
01089 RT      158.      40.           .    1  SC    ES      .       04 10 85  CRO    ES 2    0
01144 MW      113.        .           .    0  LF    ES      .       04 10 85  CRO    ES 2    0
01090 RT       92.        .           .    0  SC    ES      .       04 10 85  CRO    ES 2    0
01153 MW      261.     230.   18      .             ES      .       04 10 85  CRO    ES 1    0
01136 MW      252.     210.   17      .             ES      .       04 10 85  CRO    ES 2    0
01170 MW      253.     140.    7      .             ES      .       04 10 85  CRO    ES 1    0
01151 MW      268.     260.    7      .             ES      .       04 10 85  CRO    ES 1    0
01160 MW      239.     180.    7      .             ES      .       04 10 85  CRO    ES 1    0
01155 MW      265.     210.           .             ES      .       04 10 85  CRO    ES 1    0
01167 MW      274.     300.   17      .             ES      .       04 10 85  CRO    ES 1    0
01150 MW      144.      45.           .             ES      .       04 10 85  CRO    ES 1    0
01174 MW      227.     175.    7      .             ES      .       04 10 85  CRO    ES 1    0
01154 MW      244.     200.           .             ES      .       04 10 85  CRO    ES 1    0
01172 MW      242.     200.    7      .             ES      .       04 10 85  CRO    ES 1    0
01152 MW      301.     390.    7      .             ES      .       04 10 85  CRO    ES 1    0
01168 MW      239.     170.    8      .             ES      .       04 10 85  CRO    ES 1    0
01156 MW      228.     175.           .             ES      .       04 10 85  CRO    ES 1    0
01257 MW      266.     250.    7      .             ES      .       05 10 85  CRO    ES 3    0
01254 MW      303.     320.    7      .             ES      .       05 10 85  CRO    ES 3    0
01295 RT       69.        .           .    0  LF    ES      .       05 10 85  CRO    ES 3A   0
01213 MW      301.     325.    7      .             ES      .       05 10 85  CRO    ES 3    0
01263 MW      308.     380.    7      .             ES      .       05 10 85  CRO    ES 3    0
01245 MW      271.     245.    8      .             ES      .       05 10 85  CRO    ES 3    0
01255 MW      286.     260.    7      .             ES      .       05 10 85  CRO    ES 3    0
01207 MW      307.     330.   17      .             ES      .       05 10 85  CRO    ES 3    0
01277 RT      182.      40.           .             ES      .       05 10 85  CRO    ES 3    0
01284 RT       73.        .           .    0  LF    ES      .       05 10 85  CRO    ES 3A   0
01229 MW      186.      50.   99      .             ES      .       05 10 85  CRO    ES 3    0
01286 MW      305.     340.    7      .             ES      .       05 10 85  CRO    ES 3    0
01209 MW      264.     240.    7      .             ES      .       05 10 85  CRO    ES 3    0
01247 MW      303.     370.    7      .             ES      .       05 10 85  CRO    ES 3    0
01221 RT      180.      75.           .             ES      .       05 10 85  CRO    ES 3    0
01248 MW      304.     380.   17      .             ES      .       05 10 85  CRO    ES 3    0
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RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY TAG NUMBER

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SAMPLE SP.   LENGTH  WEIGHT SEX-  GONAD AGE AGE   CAPT MESH    TAG      DATE     LOCATION  SITE CAPT PRES      COMMENTS
  NO.         (MM)    (G)   MAT.  WT(G)     METH  METH (CM)    NO.   DAY MO YR                  CODE CODE
..........................................................................................................................
01208 MW     270.    230.          .                ES    .            05 10 85   CRO       ES 3    0
01248 MW     368.    600.   17     .                ES    .            05 10 85   CRO       ES 3    0
01237 MW     308.    375.    7     .                ES    .            05 10 85   CRO       ES 3    0
01211 MW     276.    255.    7     .                ES    .            05 10 85   CRO       ES 3    0
01217 RT     152.     30.          .                ES    .            05 10 85   CRO       ES 3    0
01210 MW     331.    460.   17     .                ES    .            05 10 85   CRO       ES 3    0
01234 MW     348.    480.   17     .                ES    .            05 10 85   CRO       ES 3    0
01212 MW     323.    415.    7     .                ES    .            05 10 85   CRO       ES 3    0
01225 MW     276.    290.   17     .                ES    .            05 10 85   CRO       ES 3    0
01241 MW     355.    680.   17     .                ES    .            05 10 85   CRO       ES 3    0
01216 RT     156.     45.          .                ES    .            05 10 85   CRO       ES 3    0
01231 MW     180.     60.   99     .                ES    .            05 10 85   CRO       ES 3    0
01223 MW     295.    340.   17     .                ES    .            05 10 85   CRO       ES 3    0
01240 MW     315.    315.          .                ES    .            05 10 85   CRO       ES 3    0
01218 RT     204.    115.          .                ES    .            05 10 85   CRO       ES 3    0
01235 MW     311.    400.    7     .                ES    .            05 10 85   CRO       ES 3    0
01227 MW     234.    175.   17     .                ES    .            05 10 85   CRO       ES 3    0
01243 MW     350.       .   17     .                ES    .            05 10 85   CRO       ES 3    0
01214 MW     260.    280.          .                ES    .            05 10 85   CRO       ES 3    0
01230 MW     202.    115.   99     .                ES    .            05 10 85   CRO       ES 3    0
01222 MW     283.    305.   17     .                ES    .            05 10 85   CRO       ES 3    0
01238 MW     274.    295.   17     .                ES    .            05 10 85   CRO       ES 3    0
01226 MW     226.    180.   17     .                ES    .            05 10 85   CRO       ES 3    0
01236 MW     316.    415.   17     .                ES    .            05 10 85   CRO       ES 3    0
01224 MW     233.    180.    8     .                ES    .            05 10 85   CRO       ES 3    0
01242 MW     332.    480.    7     .                ES    .            05 10 85   CRO       ES 3    0
01228 MW     228.    150.    7     .                ES    .            05 10 85   CRO       ES 3    0
01232 MW     327.    340.          .                ES    .            05 10 85   CRO       ES 3    0
01244 MW     322.    455.    7     .                ES    .            05 10 85   CRO       ES 3    0
01349 MW     242.    155.          .     3   SC     ES    .            10 10 85   CAS       ES 1    0
01350 MW     143.     40.          .     1   SC     ES    .            10 10 85   CAS       ES 1    0
01351 RT     145.     45.          .     1   SC     ES    .            10 10 85   CAS       ES 1    0
01334 MW     245.    180.   99     .     4   SC     ES    .            10 10 85   CAS       ES 1    0
01318 MW     213.    130.          .                ES    .            10 10 85   CAS       ES 1    0
01342 RT     183.     50.          .     2   SC     ES    .            10 10 85   CAS       ES 1    0
01352 DV     152.     30.          .     1   SC     ES    .            10 10 85   CAS       ES 1    0
01338 RT     172.     70.          .     2   SC     ES    .            10 10 85   CAS       ES 1    0
01322 MW     136.     25.          .                ES    .            10 10 85   CAS       ES 1    0
01333 MW     165.     60.   99     .     2   SC     ES    .            10 10 85   CAS       ES 1    0
01348 MW     171.     50.          .     2   SC     ES    .            10 10 85   CAS       ES 1    0
01347 RT     128.       .          .     1   SC     ES    .            10 10 85   CAS       ES 1    0
01319 MW     277.    250.   17     .                ES    .            10 10 85   CAS       ES 1    0
01345 RT     163.     55.          .     2   SC     ES    .            10 10 85   CAS       ES 1    0
01337 RT     161.     45.          .     1   SC     ES    .            10 10 85   CAS       ES 1    0
01346 RT     149.     35.          .     2   SC     ES    .            10 10 85   CAS       ES 1    0
01393 MW     297.       .    8     .                ES    .            17 10 85   CRO       CHP3    0
01362 MW     268.       .          .                ES    .            17 10 85   CRO       CHP3    0
01355 MW     340.       .   18     .                ES    .            17 10 85   CRO       CHP3    0
01356 MW     291.       .    8     .                ES    .            17 10 85   CRO       CHP3    0
01394 MW     256.       .   17     .                ES    .            17 10 85   CRO       CHP3    0
01358 MW     317.       .    8     .                ES    .            17 10 85   CRO       CHP3    0
01359 MW     254.       .    8     .                ES    .            17 10 85   CRO       CHP3    0
01376 MW     306.       .    8     .                ES    .            17 10 85   CRO       CHP3    0
01389 MW     291.       .    8     .                ES    .            17 10 85   CRO       CHP3    0
01378 MW     304.       .    8     .                ES    .            17 10 85   CRO       CHP3    0
01379 MW     293.       .    8     .                ES    .            17 10 85   CRO       CHP3    0
01388 MW     260.       .   17     .                ES    .            17 10 85   CRO       CHP3    0
01391 MW     259.       .          .                ES    .            17 10 85   CRO       CHP3    0
01390 MW     226.       .   99     .                ES    .            17 10 85   CRO       CHP3    0
01375 MW     318.       .   17     .                ES    .            17 10 85   CRO       CHP3    0
01380 MW     289.       .   17     .                ES    .            17 10 85   CRO       CHP3    0
01397 MW     221.       .    8     .                ES    .            17 10 85   CRO       CHP3    0
01386 MW     271.       .    8     .                ES    .            17 10 85   CRO       CHP3    0
01387 MW     265.       .   17     .                ES    .            17 10 85   CRO       CHP3    0
01392 MW     304.       .   17     .                ES    .            17 10 85   CRO       CHP3    0
01377 MW     272.       .    8     .                ES    .            17 10 85   CRO       CHP3    0
01381 MW     322.       .   17     .                ES    .            17 10 85   CRO       CHP3    0
01361 MW     312.       .   18     .                ES    .            17 10 85   CRO       CHP3    0
01398 MW     222.       .    8     .                ES    .            17 10 85   CRO       CHP3    0
01395 MW     271.       .   17     .                ES    .            17 10 85   CRO       CHP3    0
01400 MW     240.       .    7     .                ES    .            17 10 85   CRO       CHP3    0
01399 MW     307.       .    8     .                ES    .            17 10 85   CRO       CHP3    0
01357 MW     262.       .    8     .                ES    .            17 10 85   CRO       CHP3    0
01396 MW     256.       .   17     .                ES    .            17 10 85   CRO       CHP3    0
01439 RT     196.       .          .                ES    .            19 10 85   OLD       ES 1    0
01456 MW     257.    205.    8     .                ES    .            19 10 85   OLD       ES 1    0
01429 MW     153.       .   99     .                ES    .            19 10 85   OLD       ES 1    0
01421 RT     138.       .          .     1   SC     ES    .            19 10 85   OLD       ES 1    0
01435 RT     170.       .          .     1   SC     ES    .            19 10 85   OLD       ES 1    0
01458 MW     218.    100.   99     .                ES    .            19 10 85   OLD       ES 1    0
01437 RT     155.       .          .                ES    .            19 10 85   OLD       ES 1    0
01406 MW     284.       .    8     .     4   SC     ES    .            19 10 85   OLD       ES 1    0
01455 MW     233.    145.    8     .                ES    .            19 10 85   OLD       ES 1    0
01428 MW     152.       .   99     .     1   SC     ES    .            19 10 85   OLD       ES 1    0
01461 MW     204.     95    99     .                ES    .            19 10 85   OLD       ES 1    0
01425 MW     272.       .    8     .     4   SC     ES    .            19 10 85   OLD       ES 1    0
01459 MW     220.    120    99     .                ES    .            19 10 85   OLD       ES 1    0
01438 RT     175.       .          .                ES    .            19 10 85   OLD       ES 1    0
01457 MW     257.    200     8     .                ES    .            19 10 85   OLD       ES 1    0
01416 RT     183.       .          .     2   SC     ES    .            19 10 85   OLD       ES 1    0
01427 MW     160.       .   99     .     1   SC     ES    .            19 10 85   OLD       ES 1    0
01436 RT     159.       .          .                ES    .            19 10 85   OLD       ES 1    0
01417 RT     174.       .          .     1   SC     ES    .            19 10 85   OLD       ES 1    0
01460 MW     160.       .   99     .                ES    .            19 10 85   OLD       ES 1    0
01418 RT     146.       .          .     1   SC     ES    .            19 10 85   OLD       ES 1    0
01415 MW     219.       .   99     .     2   SC     ES    .            19 10 85   OLD       ES 1    0
01412 RT     210.       .          .     2   SC     ES    .            19 10 85   OLD       ES 1    0
01426 MW     243.       .    8     .         SC     ES    .            19 10 85   OLD       ES 1    0
01420 RT     154.       .          .     1   SC     ES    .            19 10 85   OLD       ES 1    0
01419 RT     126.       .          .     1   SC     ES    .            19 10 85   OLD       ES 1    0
0  188 RT    164.     50.          .     1   SO     ES    .            18 08 85   OLD       ES 1    1
0  185 RT    142.     30.   99     .     1   SO     ES    .            18 08 85   OLD       ES 1    1
0  419 RT    280.    385.   11     .     2   SO     ES    .            19 08 85   CRO       ES 1    1
0  370 MW    249.    220.   18     .         SC     ES    .            19 08 85   CRO       ES 1    1
0  418 RT    239.    185.   11     .         SO     ES    .            19 08 85   CRO       ES 1    1
0  333 MW    327.    450.   18     .     4   SC     ES    .            19 08 85   CRO       ES 1    1
0  420 RT    210.    140.    1     .         SO     ES    .            19 08 85   CRO       ES 1    1
0  397 MW    338.    520.    8     .     5   SC     ES    .            19 08 85   CRO       ES 1    1
0  316 RT    163.     60.          .     1   SO     ES    .            19 08 85   CRO       ES 1    1
0  380 RT    177.       .          .     1   SO     ES    .            19 08 85   CRO       ES 1    1
0  401 RT    282.    310.   11     .     2   SC     ES    .            19 08 85   CRO       ES 1    1
0  399 MW    238.    260.   18     .         SC     ES    .            19 08 85   CRO       ES 1    1
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RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY TAG NUMBER
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SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY MO YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
0 398	MW	275.	330.	16	.	3	SC	ES	.		19 08 85	CRO	ES 1	1		
0 400	MW	222.	140.	1	.	2	SC	ES	.		19 08 85	CRO	ES 1	1		
0 505	MW	218.	170.	6	.			ES	.		20 08 85	CRO	ES 3	1		
0 473	MW	235.	160.	6	.	2	SC	ES	.		20 08 85	CRO	ES 3	1		
0 477	MW	235.	180.	6	.	2	SC	ES	.		20 08 85	CRO	ES 3	1		
0 464	MW	248.	180.	6	.	3	SC	ES	.		20 08 85	CRO	ES 3	1		
0 478	MW	214.	145.	6	.	2	SC	ES	.		20 08 85	CRO	ES 3	1		
0 472	RT	285.	290.	1	.		SO	ES	.		20 08 85	CRO	ES 3	1		
0 465	MW	264.	240.	16	.	3	SC	ES	.		20 08 85	CRO	ES 3	1		
0 475	MW	217.	130.	11	.	2	SC	ES	.		20 08 85	CRO	ES 3	1		
0 474	MW	181.	90.	1	.	2	SC	ES	.		20 08 85	CRO	ES 2	1		
0 476	MW	289.	260.	6	.	3	SC	ES	.		20 08 85	CRO	ES 3	1		
0 582	MW	251.	.	16	.			ES	.		21 08 85	OLD	ES 2	1		
0 625	MW	242.	210.	6	.			ES	.		21 08 85	OLD	ES 2	1		
0 604	RT	219.	140.	11	.	2	SO	ES	.		21 08 85	OLD	ES 2	1		
0 663	MW	245.	195.	16	.			ES	.		21 08 85	OLD	ES 2	1		
0 629	MW	214.	130.	6	.			ES	.		21 08 85	OLD	ES 2	1		
0 627	MW	250.	220.	6	.			ES	.		21 08 85	OLD	ES 2	1		
0 626	MW	286.	330.	16	.			ES	.		21 08 85	OLD	ES 2	1		
0 628	MW	227.	150.	6	.			ES	.		21 08 85	OLD	ES 2	1		
0 798	RT	321.	470.	11	.	2	SO	ES	.		22 08 85	CRO	ES 2	1		
0 845	BNT	363.	630.	11	.	2	SO	ES	.		22 08 85	CRO	ES 2	1		
0 820	RT	278.	280.	11	.	2	SO	ES	.		22 08 85	CRO	ES 2	1		
0 846	RT	358.	700.	16	.	3	SO	ES	.		22 08 85	CRO	ES 2	1		
0 923	RT	421.	.	16	.			ES	.		20 09 85	CRO	CNP3	1		ST. FULL SNAILS
01048	BNT	356.	630.	11	.	2	SO	ES	.		02 10 85	CRO	CNP1	1		
01038	MW	316.	380.	7	.	6	SC	ES	.		02 10 85	CRO	CNP2	1		
01068	MW	285.	290.	19	.	4	SC	ES	.		03 10 85	OLD	DMP1	1		
01070	DV	361.	530.	11	.	3	SO	ES	.		03 10 85	OLD	DMP1	1		RUN # 2; ST-2RT JUV
01128	BNT	391.	980.	6	.	2	SO	ES	.		04 10 85	CRO	ES 2	1		ST-PLECOPS; 1LND
01112	RT	476.	1520.		.	4	SO	ES	.		04 10 85	CRO	ES 2	1		ST-26 LARGE PLECOPS
01078	MW	283.	290.		.	4	SC	ES	.		04 10 85	CRO	ES 2	1		
01083	MW	241.	195.	7	.			ES	.		04 10 85	CRO	ES 2	1		
01079	MW	275.	290.	7	.		SC	ES	.		04 10 85	CRO	ES 2	1		
01080	MW	300.	290.		.	4	SC	ES	.		04 10 85	CRO	ES 2	1		
01266	RT	318.	460.		.			ES	.		05 10 85	CRO	ES 3	1		MORTALITY
01215	MW	322.	395.	7	.			ES	.		05 10 85	CRO	ES 3	1		
01233	MW	301.	305.		.			ES	.		05 10 85	CRO	ES 3	1		
01301	MW	90.	6.	99	.	0	SC	ES	.		06 10 85	CAS	ES 2	1		
01296	MW	275	233.	17	.	3	SC	ES	.		06 10 85	CAS	ES 2	1		
01304	MW	83.	.	99	.	0	LF	ES	.		06 10 85	CAS	ES 2	1		
01307	RT	115.	16.	99	.	1	SO	ES	.		06 10 85	CAS	ES 2	1		
01306	MW	78.	.	99	.	0	LF	ES	.		06 10 85	CAS	ES 2	1		
01305	MW	74.	.	99	.	0	LF	ES	.		06 10 85	CAS	ES 2	1		
01300	MW	79.	4.	99	.	0	LF	ES	.		06 10 85	CAS	ES 2	1		
01311	RT	200.	92.	11	.	2	SO	ES	.		06 10 85	CAS	ES 2	1		ST-3/4 FULL CORIX
01310	RT	135.	26.	99	.	1	SO	ES	.		06 10 85	CAS	ES 2	1		
01309	RT	128.	22.	99	.	1	SO	ES	.		06 10 85	CAS	ES 2	1		
01312	RT	204.	98.	1	.	2	SO	ES	.		06 10 85	CAS	ES 2	1		ST-1/4 FULL CORIX
01315	RT	237.	156.	11	.	2	SO	ES	.		06 10 85	CAS	ES 2	1		ST-3/4 FULL CORIX
01298	MW	305.	412.	6	.	6	SC	ES	.		06 10 85	CAS	ES 2	1		
01313	RT	186.	65.	1	.		SO	ES	.		06 10 85	CAS	ES 2	1		ST-1/2 FULL CORIX
01316	DV	268.	163.	1	.	2	SO	ES	.		06 10 85	CAS	ES 2	1		ST-1/4FULL FISH REM
01303	MW	79.	.	99	.	0	LF	ES	.		06 10 85	CAS	ES 2	1		
01302	MW	81.	.	99	.	0	LF	ES	.		06 10 85	CAS	ES 2	1		
01297	MW	334.	507.	17	.	6	SC	ES	.		06 10 85	CAS	ES 2	1		
01308	RT	139.	28.	99	.	1	SO	ES	.		06 10 85	CAS	ES 2	1		
01299	MW	179.	52.	99	.	2	SC	ES	.		06 10 85	CAS	ES 2	1		
01314	RT	247.	194.	11	.	2	SO	ES	.		06 10 85	CAS	ES 2	1		ST-FULL CORIX
01365	RT	389.	780.		.	3	SO	ES	.		17 10 85	CRO	CNP3	1		
01441	MW	298.	305.	19	.		SC	ES	.		19 10 85	OLD	ES 1	1		
01411	MW	295.	.	9	.	4	SC	ES	.		19 10 85	OLD	ES 1	1		STMT
0 844	MW	272.	.		.			ES	.	1698	22 08 85	CRO	ES 2	0		
0 7	RT	285.	.		.	3	SC	ES	.	0 1351	17 08 85	CAS	ES 1	0		
0 23	MW	317.	.	97	.	7	SC	ES	.	0 1352	17 08 85	CAS	ES 1	0		
0 22	RT	571.	.	97	.		SC	ES	.	0 1353	17 08 85	CAS	ES 1	0		EST. @ 5-6 lbs
0 24	MW	372.	.	97	.	6	SC	ES	.	0 1354	17 08 85	CAS	ES 1	0		
0 25	MW	307.	.		.			ES	.	0 1355	17 08 85	CAS	ES 1	0		
0 27	MW	281.	.		.	5	SC	ES	.	0 1356	17 08 85	CAS	ES 1	0		
0 29	RT	291	.		.	3	SC	ES	.	0 1357	17 08 85	CAS	ES 1	0		
0 37	MW	266.	.		.			ES	.	0 1358	17 08 85	CAS	ES 1	0		
0 38	MW	239.	.		.	3	SC	ES	.	0 1359	17 08 85	CAS	ES 1	0		
0 62	DV	317.	.		.	3	SC	ES	.	0 1360	17 08 85	CAS	ES 1	0		
0 64	MW	260.	.		.			ES	.	0 1361	17 08 85	CAS	ES 1	0		
0 104	RT	230.	.		.	2	SC	ES	.	0 1362	17 08 85	CAS	ES 1	0		
0 65	MW	276.	.		.			ES	.	0 1363	17 08 85	CAS	ES 1	0		
0 66	MW	260	.		.			ES	.	0 1364	17 08 85	CAS	ES 1	0		
0 68	MW	253	.		.			ES	.	0 1365	17 08 85	CAS	ES 1	0		
0 69	MW	246.	.		.			ES	.	0 1366	17 08 85	CAS	ES 1	0		
0 70	MW	265	.		.			ES	.	0 1367	17 08 85	CAS	ES 1	0		
0 71	MW	264	.		.			ES	.	0 1368	17 08 85	CAS	ES 1	0		
0 72	MW	230	.		.			ES	.	0 1369	17 08 85	CAS	ES 1	0		
0 73	MW	243.	.		.			ES	.	0 1370	17 08 85	CAS	ES 1	0		
0 101	RT	222	.		.	2	SC	ES	.	0 1371	17 08 85	CAS	ES 1	0		
0 98	MW	300	.	97	.			ES	.	0 1373	17 08 85	CAS	ES 1	0		
0 99	MW	266.	.	97	.			ES	.	0 1374	17 08 85	CAS	ES 1	0		
0 103	RT	223.	.		.	2	SC	ES	.	0 1375	17 08 85	CAS	ES 1	0		
0 122	RT	257	.		.	2	SC	ES	.	0 1376	18 08 85	OLD	ES 1	0		
0 123	RT	260.	.		.	2	SC	ES	.	0 1377	18 08 85	OLD	ES 1	0		
0 124	RT	238.	.		.	2	SC	ES	.	0 1378	18 08 85	OLD	ES 1	0		
0 126	RT	233	.		.	2	SC	ES	.	0 1379	18 08 85	OLD	ES 1	0		
0 127	RT	237.	.		.		SC	ES	.	0 1380	18 08 85	OLD	ES 1	0		
0 130	RT	227.	.		.		SC	ES	.	0 1381	18 08 85	OLD	ES 1	0		
0 132	RT	432.	1220.		.	4	SC	ES	.	0 1382	18 08 85	OLD	ES 1	0		
0 138	MW	357.	580.		.	7	SC	ES	.	0 1383	18 08 85	OLD	ES 1	0		
0 139	RT	263.	220.		.	3	SC	ES	.	0 1384	18 08 85	OLD	ES 1	0		
0 140	RT	227.	180.		.		SC	ES	.	0 1385	18 08 85	OLD	ES 1	0		
0 141	RT	318.	460.		.	3	SC	ES	.	0 1386	18 08 85	OLD	ES 1	0		
0 145	BNT	321.	480.		.	2	SC	ES	.	0 1387	18 08 85	OLD	ES 1	0		
0 148	RT	227.	160.		.		SC	ES	.	0 1388	18 08 85	OLD	ES 1	0		
0 168	MW	300.	410.		.	5	SC	ES	.	0 1389	18 08 85	OLD	ES 1	0		
0 167	RT	245.	220.		.		SC	ES	.	0 1390	18 08 85	OLD	ES 1	0		
0 176	MW	327.	400.		.	6	SC	ES	.	0 1391	18 08 85	OLD	ES 1	0		
0 179	RT	254.	220.		.	2	SC	ES	.	0 1392	18 08 85	OLD	ES 1	0		
0 180	RT	252.	225.		.		SC	ES	.	0 1393	18 08 85	OLD	ES 1	0		
0 181	RT	242.	200.		.		SC	ES	.	0 1394	18 08 85	OLD	ES 1	0		
0 182	RT	240.	220.		.		SC	ES	.	0 1395	18 08 85	OLD	ES 1	0		
0 184	RT	235.	180.		.		SC	ES	.	0 1396	18 08 85	OLD	ES 1	0		
0 189	BNT	323.	480.		.	2	SC	ES	.	0 1397	18 08 85	OLD	ES 1	0		
0 200	RT	352.	700.		.	3	SC	ES	.	0 1398	18 08 85	OLD	ES 1	0		
0 202	RT	260.	240.		.		SC	ES	.	0 1399	18 08 85	OLD	ES 1	0		
0 201	RT	275.	310.		.	2	SC	ES	.	0 1400	18 08 85	OLD	ES 1	0		

RLAL ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY TAG NUMBER

SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY	MO	YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
0 898	BNT	243.	.		.			ES	.	0 1401	20	09	85	CRD	CNP3	0		START RUN # 2
0 899	RT	236.	.		.			ES	.	0 1402	20	09	85	CRD	CNP3	0		
0 902	RT	407.	.		.			ES	.	0 1403	20	09	85	CRD	CNP3	0		
0 903	RT	361.	.		.			ES	.	0 1404	20	09	85	CRD	CNP3	0		
0 905	BNT	230.	.		.			ES	.	0 1405	20	09	85	CRD	CNP3	0		
0 906	BNT	467.	.		.			ES	.	0 1406	20	09	85	CRD	CNP3	0		
0 908	RT	403.	.		.			ES	.	0 1407	20	09	85	CRD	CNP3	0		
0 909	RT	416.	.		.			ES	.	0 1408	20	09	85	CRD	CNP3	0		
01469	RT	.	.		.			ES	.	0 1408	24	09	85	CRD	CNP3	2		
0 910	RT	374.	.		.			ES	.	0 1409	20	09	85	CRD	CNP3	0		
01099	RT	374.	740.		.			ES	.	0 1409	04	10	85	CRD	ES 2	2		
0 911	RT	265.	.		.			ES	.	0 1410	20	09	85	CRD	CNP3	0		
0 912	RT	263.	.		.			ES	.	0 1411	20	09	85	CRD	CNP3	0		
0 914	RT	340.	.		.			ES	.	0 1412	20	09	85	CRD	CNP3	0		
0 915	RT	371.	.		.			ES	.	0 1413	20	09	85	CRD	CNP3	0		
0 916	RT	332.	.		.			ES	.	0 1414	20	09	85	CRD	CNP3	0		
0 918	RT	368.	.		.			ES	.	0 1415	20	09	85	CRD	CNP3	0		
0 920	RT	341.	.		.			ES	.	0 1416	20	09	85	CRD	CNP3	0		
0 921	RT	464.	.		.			ES	.	0 1417	20	09	85	CRD	CNP3	0		
01470	RT	.	.		.			ES	.	0 1417	24	09	85	CRD	CNP3	2		
0 922	RT	227.	.		.			ES	.	0 1418	20	09	85	CRD	CNP3	0		
0 924	RT	291.	.		.			ES	.	0 1419	20	09	85	CRD	CNP3	0		
0 925	RT	272.	.		.			ES	.	0 1420	20	09	85	CRD	CNP3	0		
0 926	BNT	269.	.		.			ES	.	0 1421	20	09	85	CRD	CNP3	0		END RUN # 2
0 927	RT	389.	.		.			ES	.	0 1422	21	09	85	CRD	CNP3	0		START RUN # 3
01467	RT	.	.		.			ES	.	0 1422	24	09	85	CRD	CNP3	2		
0 928	RT	281.	.		.			ES	.	0 1423	21	09	85	CRD	CNP3	0		
0 929	BNT	245.	.		.			ES	.	0 1424	21	09	85	CRD	CNP3	0		
01136	BNT	245.	.		.			ES	.	0 1424	04	10	85	CRD	ES 2	2		
0 930	BNT	346.	.		.			ES	.	0 1425	21	09	85	CRD	CNP3	0		
01464	BNT	.	.		.			ES	.	0 1425	24	09	85	CRD	CNP3	2		
0 931	RT	262.	.		.			ES	.	0 1426	21	09	85	CRD	CNP3	0		
0 932	RT	263.	.		.			ES	.	0 1427	21	09	85	CRD	CNP3	0		
0 933	RT	290.	.		.			ES	.	0 1428	21	09	85	CRD	CNP3	0		
0 934	BNT	241.	.		.			ES	.	0 1429	21	09	55	CRD	CNP3	0		
0 935	BNT	244.	.		.			ES	.	0 1430	21	09	85	CRD	CNP3	0		
0 936	BNT	236.	.		.			ES	.	0 1431	21	09	85	CRD	CNP3	0		
0 937	BNT	226.	.		.			ES	.	0 1432	21	09	85	CRD	CNP3	0		
01465	BNT	.	.		.			ES	.	0 1432	24	09	85	CRD	CNP3	2		
0 938	BNT	225.	.		.			ES	.	0 1433	21	09	85	CRD	CNP3	0		
01466	BNT	.	.		.			ES	.	0 1433	24	09	85	CRD	CNP3	2		
0 939	BNT	231.	.		.			ES	.	0 1434	21	09	85	CRD	CNP3	0		
0 941	RT	234.	.		.			ES	.	0 1435	21	09	85	CRD	CNP3	0		
0 943	RT	298.	.		.			ES	.	0 1436	21	09	85	CRD	CNP3	0		
01468	RT	.	.		.			ES	.	0 1436	24	09	85	CRD	CNP3	2		
0 944	RT	279.	.		.			ES	.	0 1437	21	09	85	CRD	CNP3	0		
0 945	RT	343.	.		.			ES	.	0 1438	21	09	85	CRD	CNP3	0		
0 946	RT	222.	.		.			ES	.	0 1439	21	09	85	CRD	CNP3	0		
0 947	BNT	247.	.		.			ES	.	0 1440	21	09	85	CRD	CNP3	0		
0 948	RT	227.	.		.			ES	.	0 1441	21	09	85	CRD	CNP3	0		
0 949	BNT	229.	.		.			ES	.	0 1442	21	09	85	CRD	CNP3	0		
0 950	BNT	249.	.		.			ES	.	0 1443	21	09	85	CRD	CNP3	0		
0 953	RT	391.	.		.			ES	.	0 1444	21	09	85	CRD	CNP3	0		
01270	RT	391.	.		.			ES	.	0 1444	05	10	85	CRD	ES 3	2		
0 954	BNT	248.	.		.			ES	.	0 1445	21	09	85	CRD	CNP3	0		
0 958	RT	445.	.		.			ES	.	0 1446	21	09	85	CRD	CNP3	2		
01039	RT	445.	.		.			ES	.	0 1446	02	10	85	CRD	CNP1	2		
0 959	RT	376.	.		.			ES	.	0 1447	21	09	85	CRD	CNP3	0		
0 960	RT	336.	.		.			ES	.	0 1448	21	09	85	CRD	CNP3	0		
0 961	RT	340.	.		.			ES	.	0 1449	21	09	85	CRD	CNP3	0		
0 962	RT	265.	.		.			ES	.	0 1450	21	09	85	CRD	CNP3	0		
0 204	RT	249.	240.		.			ES	.	0 1451	18	08	85	OLD	ES 1	0		
0 210	RT	247.	180.		.			ES	.	0 1452	18	08	85	OLD	ES 1	0		
0 211	RT	234.	180.		.			ES	.	0 1453	18	08	85	OLD	ES 1	0		
0 230	MW	265.	260.		.			ES	.	0 1454	19	08	85	CRD	ES 2	0		
0 233	BNT	355.	700.		.	2	SC	ES	.	0 1455	19	08	85	CRD	ES 2	0		
01138	BNT	387.	780.	10	.			ES	.	0 1455	04	10	85	CRD	ES 2	2		
0 234	BNT	457.	1360.		.	3	SC	ES	.	0 1456	19	08	85	CRD	ES 2	0		
0 235	RT	378.	700.		.	3	SC	ES	.	0 1457	19	08	85	CRD	ES 2	0		
0 236	RT	336.	600.		.		SC	ES	.	0 1458	19	08	85	CRD	ES 2	0		
0 237	BNT	542.	2440.		.	5	SC	ES	.	0 1459	19	08	85	CRD	ES 2	0		
0 238	RT	454.	1500.		.	4	SC	ES	.	0 1460	19	08	85	CRD	ES 2	0		
0 239	RT	275.	290.		.		SC	ES	.	0 1461	19	08	85	CRD	ES 2	0		
0 244	MW	260.	240.		.			ES	.	0 1462	19	08	85	CRD	ES 1	0		
0 248	MW	246.	200.		.			ES	.	0 1463	19	08	85	CRD	ES 1	0		
0 253	MW	252.	230.		.			ES	.	0 1464	19	08	85	CRD	ES 1	0		
0 254	MW	240.	180.		.			ES	.	0 1465	19	08	85	CRD	ES 1	0		
0 268	RT	282.	300.		.		SC	ES	.	0 1466	19	08	85	CRD	ES 1	0		
0 270	RT	281.	250.		.		SC	ES	.	0 1467	19	08	85	CRD	ES 1	0		
0 273	RT	359.	600.		.		SC	ES	.	0 1468	19	08	85	CRD	ES 1	0		
0 274	RT	277.	325.		.		SC	ES	.	0 1469	19	08	85	CRD	ES 1	0		
0 276	RT	355.	620.		.	3	SC	ES	.	0 1470	19	08	85	CRD	ES 1	0		
0 278	RT	241.	220.		.	1	SC	ES	.	0 1471	19	08	85	CRD	ES 1	0		
0 306	RT	223.	.		.	1	SC	ES	.	0 1472	19	08	85	CRD	ES 1	0		
0 317	MW	363.	600.		.	7	SC	ES	.	0 1473	19	08	85	CRD	ES 1	0		
0 318	MW	338.	500.		.	5	SC	ES	.	0 1474	19	08	85	CRD	ES 1	0		
0 319	RT	238.	.		.		SC	ES	.	0 1475	19	08	85	CRD	ES 1	0		
0 320	RT	311.	440.		.	2	SC	ES	.	0 1476	19	08	85	CRD	ES 1	0		
0 321	RT	306.	440.		.	2	SC	ES	.	0 1477	19	08	85	CRD	ES 1	0		
0 362	MW	385.	880.		.	6	SC	ES	.	0 1478	19	08	85	CRD	ES 1	0		
0 363	MW	310.	400.		.	6	SC	ES	.	0 1479	19	08	85	CRD	ES 1	0		
0 364	RT	368.	760.		.	3	SC	ES	.	0 1480	19	08	85	CRD	ES 1	0		
0 369	RT	279.	220.		.	2	SC	ES	.	0 1481	19	08	85	CRD	ES 1	0		
0 371	RT	410.	940.		.		SC	ES	.	0 1482	19	08	85	CRD	ES 1	0		
0 372	RT	442.	1400.		.	4	SC	ES	.	0 1483	19	08	85	CRD	ES 1	0		ST - 2LND
0 373	RT	344.	540.		.	3	SC	ES	.	0 1484	19	08	85	CRD	ES 1	0		
0 374	RT	266.	280.		.		SC	ES	.	0 1485	19	08	85	CRD	ES 1	0		
0 385	MW	257.	180.		.			ES	.	0 1486	19	08	85	CRD	ES 1	0		
0 387	MW	278.	360.		.	3	SC	ES	.	0 1487	19	08	85	CRD	ES 1	0		
0 386	MW	280.	260.		.			ES	.	0 1488	19	08	85	CRD	ES 1	0		
0 388	MW	322.	390.		.	5	SC	ES	.	0 1489	19	08	85	CRD	ES 1	0		
0 389	MW	354.	500.		.	6	SC	ES	.	0 1490	19	08	85	CRD	ES 1	0		
0 390	RT	312.	480.		.	2	SC	ES	.	0 1491	19	08	85	CRD	ES 1	0		
0 391	MW	311.	490.		.	4	SC	ES	.	0 1492	19	08	85	CRD	ES 1	0		
0 392	RT	280.	230.		.		SC	ES	.	0 1493	19	08	85	CRD	ES 1	0		
0 393	MW	250.	200.		.	3	SC	ES	.	0 1494	19	08	85	CRD	ES 1	0		
0 394	MW	270.	260.		.	3	SC	ES	.	0 1495	19	08	85	CRD	ES 1	0		
0 395	MW	273.	280.		.	3	SC	ES	.	0 1496	19	08	85	CRD	ES 1	0		
0 396	MW	239.	180.		.	3	SC	ES	.	0 1497	19	08	85	CRD	ES 1	0		
0 481	RT	410.	1010.		.	3	SC	ES	.	0 1498	20	08	85	CRD	ES 3	0		
0 482	RT	407.	980.		.		SC	ES	.	0 1499	20	08	85	CRD	ES 3	0		
0 483	RT	413.	1040.		.	4	SC	ES	.	0 1500	20	08	85	CRD	ES 3	0		

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                         RL&L ENVIRONMENTAL SERVICES LTD.
                    FISHERIES DATA - PRINT OUT BY TAG NUMBER
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 SAMPLE SP.  LENGTH   WEIGHT  SEX- GONAD AGE AGE  CAPT MESH    TAG      DATE     LOCATION  SITE CAPT PRES      COMMENTS
   NO.        (MM)     (G)    MAT. WT(G)     METH METH (CM)    NO.   DAY MO YR                  CODE CODE
...........................................................................................................................
0 486 MW     424.     810.           .   5  SC   ES     .   0 1501   20 08 85   CRO     ES 3   0
0 487 RT     334.     540.           .   3  SC   ES     .   0 1502   20 08 85   CRO     ES 3   0
0 878 RT     336.        .           .           ES     .   0 1502   20 09 85   CRO     CHP3   2
0 489 RT     347.     560.           .   3  SC   ES     .   0 1503   20 08 85   CRO     ES 3   0
0 490 RT     288.     350.           .   2  SC   ES     .   0 1504   20 08 85   CRO     ES 3   0
0 491 RT     278.     300.           .   2  SC   ES     .   0 1505   20 08 85   CRO     ES 3   0
0 492 RT     266.     230.           .   2  SC   ES     .   0 1506   20 08 85   CRO     ES 3   0
0 493 RT     253.     205.           .   2  SC   ES     .   0 1507   20 08 85   CRO     ES 3   0
0 494 RT     264.     210.           .      SC   ES     .   0 1508   20 08 85   CRO     ES 3   0
0 495 RT     230.     160.           .   2  SC   ES     .   0 1509   20 08 85   CRO     ES 3   0
0 499 MW     248.        .           .   3  SC   ES     .   0 1510   20 08 85   CRO     ES 3   0
0 500 MW     278.     300.           .      SC   ES     .   0 1511   20 08 85   CRO     ES 3   0
0 501 MW     272.     250.           .      SC   ES     .   0 1512   20 08 85   CRO     ES 3   0
0 502 MW     247.     190.           .      SC   ES     .   0 1513   20 08 85   CRO     ES 3   0
0 504 MW     244.     200.           .      SC   ES     .   0 1514   20 08 85   CRO     ES 3   0
0 506 MW     324.     450.           .   5  SC   ES     .   0 1515   20 08 85   CRO     ES 3   0
0 907 MW     332.        .           .           ES     .   0 1515   20 09 85   CRO     CHP3   2
0 507 MW     329.     410.           .   5  SC   ES     .   0 1516   20 08 85   CRO     ES 3   0
0 508 MW     305.     380.           .           ES     .   0 1517   20 08 85   CRO     ES 3   0
0 509 MW     284.     315.           .   3  SC   ES     .   0 1518   20 08 85   CRO     ES 3   0
0 510 RT     257.     230.           .   2  SC   ES     .   0 1519   20 08 85   CRO     ES 3   0
0 511 RT     357.     600.           .   3  SC   ES     .   0 1520   20 08 85   CRO     ES 3   0
0 512 MW     318.     380.           .   5  SC   ES     .   0 1521   20 08 85   CRO     ES 3   0
0 513 BNT    237.     205.           .   1  SC   ES     .   0 1522   20 08 85   CRO     ES 3   0
0 518 MW     312.     350.           .           ES     .   0 1523   20 08 85   CRO     ES 3   0
01098 RT     324.     540.           .           ES     .   0 1523   04 10 85   CRO     ES 2   2
0 519 MW     231.     180.           .           ES     .   0 1524   20 08 85   CRO     ES 3   0
0 520 MW     256.     220.           .           ES     .   0 1525   20 08 85   CRO     ES 3   0
0 522 MW     285.     315.           .           ES     .   0 1526   20 08 85   CRO     ES 3   0
0 521 MW     314.     360.           .           ES     .   0 1527   20 08 85   CRO     ES 3   0
0 523 MW     316.     420.           .           ES     .   0 1528   20 08 85   CRO     ES 3   0
0 524 MW     300.     320.           .           ES     .   0 1529   20 08 85   CRO     ES 3   0
0 967 MW        .     328.           .           ES     .   0 1529   21 09 85   CRO     CHP3   2
0 526 MW     318.     350.           .           ES     .   0 1530   20 08 85   CRO     ES 3   0
0 527 MW     283.     240.           .           ES     .   0 1531   20 08 85   CRO     ES 3   0
0 885 MW     240.        .           .           ES     .   0 1531   20 09 85   CRO     CHP3   2
0 528 MW     255.     280.           .           ES     .   0 1532   20 08 85   CRO     ES 3   0
0 529 MW     250.     220.           .           ES     .   0 1533   20 08 85   CRO     ES 3   0
0 530 MW     280.        .           .           ES     .   0 1534   21 08 85   OLD     ES 2   0
0 531 RT     284.        .           .   3  SC   ES     .   0 1535   21 08 85   OLD     ES 2   0
0 532 MW     287.        .           .           ES     .   0 1536   21 08 85   OLD     ES 2   0
0 533 MW     237.        .           .           ES     .   0 1537   21 08 85   OLD     ES 2   0
0 534 MW     286.        .           .           ES     .   0 1538   21 08 85   OLD     ES 2   0
0 535 MW     276.        .           .           ES     .   0 1539   21 08 85   OLD     ES 2   0
0 536 MW     260.        .           .           ES     .   0 1540   21 08 85   OLD     ES 2   0
0 546 MW     284.        .           .           ES     .   0 1541   21 08 85   OLD     ES 2   0
0 547 MW     290.        .           .           ES     .   0 1542   21 08 85   OLD     ES 2   0
0 548 MW     265.        .           .           ES     .   0 1543   21 08 85   OLD     ES 2   0
0 549 MW     286.        .           .           ES     .   0 1544   21 08 85   OLD     ES 2   0
0 550 MW     282.        .           .           ES     .   0 1545   21 08 55   OLD     ES 2   0
0 551 MW     251.        .           .           ES     .   0 1546   21 08 85   OLD     ES 2   0
0 552 MW     228.        .           .           ES     .   0 1547   21 08 85   OLD     ES 2   0
0 563 RT     244.        .           .   2  SC   ES     .   0 1548   21 08 85   OLD     ES 2   0
0 568 MW     327.        .           .           ES     .   0 1549   21 08 85   OLD     ES 2   0
0 569 MW     311.        .           .           ES     .   0 1550   21 08 85   OLD     ES 2   0
0 570 MW     343.        .           .           ES     .   0 1551   21 08 85   OLD     ES 2   0
0 571 MW     259.        .           .           ES     .   0 1552   21 08 85   OLD     ES 2   0
0 572 MW     273.        .           .           ES     .   0 1553   21 08 85   OLD     ES 2   0
0 573 MW     266.        .           .           ES     .   0 1554   21 08 85   OLD     ES 2   0
0 574 MW     284.        .           .           ES     .   0 1555   21 08 85   OLD     ES 2   0
0 575 MW     276.        .           .           ES     .   0 1556   21 08 85   OLD     ES 2   0
0 584 RT     281.     240.           .   2  SC   ES     .   0 1560   21 08 85   OLD     ES 2   0
0 636 RT     258.        .           .      SC   ES     .   0 1561   21 08 85   OLD     ES 2   0
0 586 RT     242.     185.           .   2  SD   ES     .   0 1562   21 08 85   OLD     ES 2   1
0 587 RT     249.     210.           .   2  SC   ES     .   0 1563   21 08 85   OLD     ES 2   0
0 588 RT     307.     400.           .   3  SC   ES     .   0 1564   21 08 85   OLD     ES 2   0
0 589 RT     225.     150.           .   2  SC   ES     .   0 1565   21 08 85   OLD     ES 2   0
0 590 RT     244.     165.           .      SC   ES     .   0 1566   21 08 85   OLD     ES 2   0
0 591 RT     247.     210.           .      SC   ES     .   0 1567   21 08 85   OLD     ES 2   0
0 594 RT     240.     140.           .   2  SC   ES     .   0 1568   21 08 85   OLD     ES 2   0
0 605 MW     287.     250.           .           ES     .   0 1569   21 08 85   OLD     ES 2   0
0 606 MW     304.     305.           .           ES     .   0 1570   21 08 85   OLD     ES 2   0
0 607 MW     380.     500.           .           ES     .   0 1571   21 08 85   OLD     ES 2   0
01430 MW     360.        .    8      .   6  SC   ES     .   0 1571   18 10 85   OLD     ES 1   0
0 608 MW     302.     315.           .           ES     .   0 1572   21 08 85   OLD     ES 2   0
0 609 MW     321.     380.           .           ES     .   0 1573   21 08 85   OLD     ES 2   0
0 610 MW     298.     360.           .           ES     .   0 1574   21 08 85   OLD     ES 2   0
0 611 MW     259.     215.           .           ES     .   0 1575   21 08 85   OLD     ES 2   0
0 612 MW     313.     360.           .           ES     .   0 1576   21 08 85   OLD     ES 2   0
0 613 MW     271.     220.           .           ES     .   0 1577   21 08 85   OLD     ES 2   0
0 637 RT     224.        .           .      SC   ES     .   0 1578   21 08 85   OLD     ES 2   0
0 638 RT     230.     140.           .      SC   ES     .   0 1579   21 08 85   OLD     ES 2   0
0 653 MW     320.     380.           .           ES     .   0 1580   21 08 85   OLD     ES 2   0
0 654 MW     263.     240.           .           ES     .   0 1581   21 08 85   OLD     ES 2   0
0 655 MW     270.     270.           .           ES     .   0 1582   21 08 85   OLD     ES 2   0
0 656 MW     289.     280.           .           ES     .   0 1583   21 08 85   OLD     ES 2   0
0 657 MW     278.     250.           .           ES     .   0 1584   21 08 85   OLD     ES 2   0
0 658 MW     264.     225.           .           ES     .   0 1585   21 08 85   OLD     ES 2   0
0 666 RT     273.     240.           .           ES     .   0 1586   21 08 85   OLD     ES 2   0
0 670 RT     224.     145.           .           ES     .   0 1587   21 08 85   OLD     ES 2   0
0 671 RT     246.     200.           .           ES     .   0 1588   21 08 85   OLD     ES 2   0
0 672 RT     230.     140.           .           ES     .   0 1589   21 08 85   OLD     ES 2   0
0 676 RT     239.     180.           .           ES     .   0 1590   21 08 85   OLD     ES 2   0
0 682 MW     311.     330.           .           ES     .   0 1591   21 08 85   OLD     ES 2   0
0 684 MW     411.     700.           .           ES     .   0 1592   21 08 85   OLD     ES 2   0
0 685 MW     352.     550.           .           ES     .   0 1593   21 08 85   OLD     ES 2   0
0 686 MW     316.     420.           .           ES     .   0 1594   21 08 85   OLD     ES 2   0
0 687 MW     277.     270.           .           ES     .   0 1595   21 08 85   OLD     ES 2   0
0 688 MW     259.     210.           .           ES     .   0 1596   21 08 85   OLD     ES 2   0
0 689 MW     262.     210.           .           ES     .   0 1597   21 08 85   OLD     ES 2   0
0 698 RT     426.     950.           .   4  SC   ES     .   0 1598   22 08 85   CRO     ES 2   0
0 699 RT     298.     345.           .   2  SC   ES     .   0 1599   22 08 85   CRO     ES 2   0
0 700 MW     289.     350.           .           ES     .   0 1600   22 08 85   CRO     ES 2   0
0 701 RT     303.     390.           .   2  SC   ES     .   0 1601   22 08 85   CRO     ES 2   0
0 702 RT     355.     630.           .   3  SC   ES     .   0 1602   22 08 85   CRO     ES 2   0
0 703 RT     398.     800.           .   3  SC   ES     .   0 1603   22 08 85   CRO     ES 2   0
0 704 RT     387.     810.           .   3  SC   ES     .   0 1604   22 08 85   CRO     ES 2   0
0 705 RT     382.     770.           .   3  SC   ES     .   0 1605   22 08 85   CRO     ES 2   0
0 706 RT     402.     780.           .   3  SC   ES     .   0 1606   22 08 85   CRO     ES 2   0
0 707 RT     298.     410.           .   2  SC   ES     .   0 1607   22 08 85   CRO     ES 2   0
0 708 MW     279.     300.           .           ES     .   0 1608   22 08 85   CRO     ES 2   0
0 709 BNT    223.     145.           .   1  SC   ES     .   0 1608   22 08 85   CRO     ES 2   0
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RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY TAG NUMBER

SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DAY	MO	YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
0 713	MW	328.	430.		.			ES	.	0 1610	22	08	85	CRO	ES 2	0		
0 714	MW	250.	240.		.			ES	.	0 1611	22	08	85	CRO	ES 2	0		
0 719	MW	269.	240.		.			ES	.	0 1612	22	08	85	CRO	ES 2	0		
0 720	MW	309.	400.		.			ES	.	0 1613	22	08	85	CRO	ES 2	0		
0 721	MW	234.	145.		.			ES	.	0 1614	22	08	85	CRO	ES 2	0		
0 724	RT	262.	240.		.	2	SC	ES	.	0 1615	22	08	85	CRO	ES 2	0		
0 725	RT	463.	.		.	4	SC	ES	.	0 1616	22	08	85	CRO	ES 2	0		
0 726	RT	462.	1460.		.	4	SC	ES	.	0 1617	22	08	85	CRO	ES 2	0		
0 727	RT	322.	420.		.	2	SC	ES	.	0 1618	22	08	85	CRO	ES 2	0		
0 728	RT	304.	400.		.	2	SC	ES	.	0 1619	22	08	85	CRO	ES 2	0		
0 730	RT	220.	175.		.	1	SC	ES	.	0 1620	22	08	85	CRO	ES 2	0		
0 731	RT	.	240.		.	1	SC	ES	.	0 1621	22	08	85	CRO	ES 2	0		
0 733	BNT	224.	180.		.	1	SC	ES	.	0 1622	22	08	85	CRO	ES 2	0		
0 892	BNT	238.	.		.			ES	.	0 1622	20	08	85	CRO	CNP3	2		
0 738	RT	315.	450.		.	2	SC	ES	.	0 1623	22	08	85	CRO	ES 2	0		
0 739	RT	387.	900.		.	3	SC	ES	.	0 1624	22	08	85	CRO	ES 2	0		
0 740	RT	408.	980.		.	3	SC	ES	.	0 1625	22	08	85	CRO	ES 2	0		
0 741	RT	325.	380.		.	2	SC	ES	.	0 1626	22	08	85	CRO	ES 2	0		
0 742	BNT	372.	850.		.	2	SC	ES	.	0 1627	22	08	85	CRO	ES 2	0		
0 743	MW	234.	.		.			ES	.	0 1628	22	08	85	CRO	ES 2	0		
0 744	MW	327.	.		.			ES	.	0 1629	22	08	85	CRO	ES 2	0		
0 745	MW	348.	.		.			ES	.	0 1630	22	08	85	CRO	ES 2	0		
0 746	MW	337.	.		.			ES	.	0 1631	22	08	85	CRO	ES 2	0		
0 747	MW	329.	.		.			ES	.	0 1632	22	08	85	CRO	ES 2	0		
0 748	MW	320.	.		.			ES	.	0 1633	22	08	85	CRO	ES 2	0		
0 749	MW	285.	.		.			ES	.	0 1634	22	08	85	CRO	ES 2	0		
0 750	MW	260.	.		.			ES	.	0 1635	22	08	85	CRO	ES 2	0		
0 751	MW	287.	.		.			ES	.	0 1636	22	08	85	CRO	ES 2	0		
0 752	MW	274.	.		.			ES	.	0 1637	22	08	85	CRO	ES 2	0		
0 753	MW	253.	.		.			ES	.	0 1638	22	08	85	CRO	ES 2	0		
0 754	MW	261.	.		.			ES	.	0 1639	22	08	85	CRO	ES 2	0		
0 755	MW	262.	.		.			ES	.	0 1640	22	08	85	CRO	ES 2	0		
0 756	MW	239.	.		.			ES	.	0 1641	22	08	85	CRO	ES 2	0		
0 757	MW	240.	.		.			ES	.	0 1642	22	08	85	CRO	ES 2	0		
0 758	MW	234.	.		.			ES	.	0 1643	22	08	85	CRO	ES 2	0		
0 769	RT	342.	580.		.	2	SC	ES	.	0 1644	22	08	85	CRO	ES 2	0		
0 770	RT	340.	600.		.	2	SC	ES	.	0 1645	22	08	85	CRO	ES 2	0		
0 771	RT	473.	1380.		.	4	SC	ES	.	0 1646	22	08	85	CRO	ES 2	0		
0 772	RT	282.	350.		.	2	SC	ES	.	0 1647	22	08	85	CRO	ES 2	0		
0 773	RT	338.	580.		.	2	SC	ES	.	0 1648	22	08	85	CRO	ES 2	0		
0 774	RT	232.	180.		.	2	SC	ES	.	0 1649	22	08	85	CRO	ES 2	0		
0 775	BNT	235.	.		.	1	SC	ES	.	0 1650	22	08	85	CRO	ES 2	0		
0 776	BNT	260.	.		.	1	SC	ES	.	0 1651	22	08	85	CRO	ES 2	0		
0 777	RT	280.	.		.			ES	.	0 1652	22	08	85	CRO	ES 2	0		
0 779	RT	232.	.		.			ES	.	0 1653	22	08	85	CRO	ES 2	0		
0 782	MW	250.	.		.			ES	.	0 1654	22	08	85	CRO	ES 2	0		
0 783	MW	328.	.		.			ES	.	0 1655	22	08	85	CRO	ES 2	0		
0 784	MW	283.	.		.			ES	.	0 1656	22	08	85	CRO	ES 2	0		
0 785	MW	337	.		.			ES	.	0 1657	22	08	85	CRO	ES 2	0		
0 786	MW	290.	.		.			ES	.	0 1658	22	08	85	CRO	ES 2	0		
0 787	MW	231.	.		.			ES	.	0 1659	22	08	85	CRO	ES 2	0		
0 789	BNT	439.	1255		.	3	SC	ES	.	0 1660	22	08	85	CRO	ES 2	0		
0 790	BNT	460.	1660.		.			ES	.	0 1661	22	08	85	CRO	ES 2	0		SCALES EMBEDDED
0 791	BNT	455.	1270.		.	3	SC	ES	.	0 1662	22	08	85	CRO	ES 2	0		
01126	BNT	465.	1240.	10	.	3	SC	ES	.	0 1662	04	10	85	CRO	ES 2	2		
0 792	RT	267.	325.		.			ES	.	0 1663	22	08	85	CRO	ES 2	0		
0 793	RT	317.	390.		.			ES	.	0 1664	22	08	85	CRO	ES 2	0		
0 794	RT	223.	190.		.			ES	.	0 1665	22	08	85	CRO	ES 2	0		
0 795	RT	301.	385.		.			ES	.	0 1666	22	08	85	CRO	ES 2	0		
0 796	RT	245.	200.		.			ES	.	0 1667	22	08	85	CRO	ES 2	0		
0 797	RT	398.	630.		.			ES	.	0 1668	22	08	85	CRO	ES 2	0		
0 799	MW	364.	.		.			ES	.	0 1669	22	08	85	CRO	ES 2	0		
0 800	MW	394.	770.		.			ES	.	0 1670	22	08	85	CRO	ES 2	0		
0 801	MW	208.	.		.			ES	.	0 1671	22	08	85	CRO	ES 2	0		
0 802	MW	209.	.		.			ES	.	0 1672	22	08	85	CRO	ES 2	0		
0 803	MW	284.	305.		.			ES	.	0 1673	22	08	85	CRO	ES 2	0		
0 804	MW	313.	410.		.			ES	.	0 1674	22	08	85	CRO	ES 2	0		
0 805	MW	282.	255.		.			ES	.	0 1675	22	08	85	CRO	ES 2	0		
0 807	BNT	343.	640.		.	2	SC	ES	.	0 1676	22	08	85	CRO	ES 2	0		
0 808	RT	386.	730.		.			ES	.	0 1677	22	08	85	CRO	ES 2	0		
01287	RT	386.	710.		.			ES	.	0 1677	05	10	85	CRO	ES 2	2		
0 809	RT	395.	800.		.			ES	.	0 1678	22	08	85	CRO	ES 2	0		
0 810	RT	349.	580.		.			ES	.	0 1679	22	08	85	CRO	ES 2	0		
0 811	RT	342.	520.		.			ES	.	0 1680	22	08	85	CRO	ES 2	0		
0 812	RT	355.	610.		.			ES	.	0 1681	22	08	85	CRO	ES 2	0		
0 813	RT	294.	320.		.			ES	.	0 1682	22	08	85	CRO	ES 2	0		
0 814	RT	330.	540.		.			ES	.	0 1683	22	08	85	CRO	ES 2	0		
0 815	BNT	250.	.		.	1	SC	ES	.	0 1684	22	08	85	CRO	ES 2	0		
0 827	BNT	342.	580.		.	4	SC	ES	.	0 1685	22	08	85	CRO	ES 2	0		
0 828	BNT	410.	880.		.			ES	.	0 1686	22	08	85	CRO	ES 2	0		SCALES EMBEDDED
0 829	RT	414.	920.		.			ES	.	0 1687	22	08	85	CRO	ES 2	0		
0 830	RT	283.	270.		.			ES	.	0 1688	22	08	85	CRO	ES 2	0		
0 831	RT	401.	750.		.			ES	.	0 1689	22	08	85	CRO	ES 2	0		
0 832	RT	322.	420.		.			ES	.	0 1690	22	08	85	CRO	ES 2	0		
0 833	RT	327.	470.		.			ES	.	0 1691	22	08	85	CRO	ES 2	0		
0 834	RT	274.	330.		.			ES	.	0 1692	22	08	85	CRO	ES 2	0		
0 835	RT	335.	500.		.			ES	.	0 1693	22	08	85	CRO	ES 2	0		
0 837	RT	222	170.		.			ES	.	0 1694	22	08	85	CRO	ES 2	0		
0 838	MW	268.	.		.			ES	.	0 1695	22	08	85	CRO	ES 2	0		
0 839	MW	337.	.		.			ES	.	0 1696	22	08	85	CRO	ES 2	0		
0 840	RT	294.	.		.			ES	.	0 1697	22	08	85	CRO	ES 2	0		
0 841	RT	345.	.		.			ES	.	0 1698	22	08	85	CRO	ES 2	0		
0 842	MW	334.	.		.			ES	.	0 1700	22	08	85	CRO	ES 2	0		
0 963	BNT	220.	.		.			ES	.	0 1701	21	09	85	CRO	CNP3	0		
0 965	RT	231.	.		.			ES	.	0 1702	21	09	85	CRO	CNP3	0		
0 968	RT	390.	.		.			ES	.	0 1703	21	09	85	CRO	CNP3	0		
0 969	RT	451.	.		.			ES	.	0 1704	21	09	85	CRO	CNP3	0		
0 970	RT	343.	.		.			ES	.	0 1705	21	09	85	CRO	CNP3	0		
0 971	RT	306.	.		.			ES	.	0 1706	21	09	85	CRO	CNP3	0		
0 974	RT	253.	.		.			ES	.	0 1707	21	09	85	CRO	CNP3	0		
0 975	RT	243.	.		.			ES	.	0 1708	21	09	85	CRO	CNP3	0		
0 982	RT	391.	.		.			ES	.	0 1709	24	09	85	CRO	CNP3	0		
0 983	RT	356.	.		.			ES	.	0 1710	24	09	85	CRO	CNP3	0		
0 984	RT	323.	.		.			ES	.	0 1711	24	09	85	CRO	CNP3	0		
0 985	RT	384.	.		.			ES	.	0 1712	24	09	85	CRO	CNP3	0		
0 986	RT	474.	.		.			ES	.	0 1713	24	09	85	CRO	CNP3	0		
01280	RT	459.	1270.		.			ES	.	0 1713	05	10	85	CRO	ES 3	2		
01388	RT	461.	.		.			ES	.	0 1713	17	10	85	CRO	CNP3	2		
0 987	RT	268.	.		.			ES	.	0 1714	24	09	85	CRO	CNP3	0		
0 992	RT	233.	.		.			ES	.	0 1715	24	09	85	CRO	CNP3	0		
0 994	RT	281.	.		.			ES	.	0 1716	24	09	85	CRO	CNP3	0		
0 995	RT	280.	.		.			ES	.	0 1717	24	09	85	CRO	CNP3	0		

RL&L ENVIRONMENTAL SERVICES LTD.
FISHERIES DATA - PRINT OUT BY TAG NUMBER
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SAMPLE	SP.	LENGTH	WEIGHT	SEX-	GONAD	AGE	AGE	CAPT	MESH	TAG	DATE			LOCATION	SITE	CAPT	PRES	COMMENTS
NO.		(MM)	(G)	MAT.	WT(G)		METH	METH	(CM)	NO.	DAY	MO	YR			CODE	CODE	
0 996	RT	275.	.		.			ES	.	0 1718	24	09	85	CRD	CNP3	0		
0 997	RT	236.	.		.			ES	.	0 1719	24	09	85	CRD	CNP3	0		
0 999	RT	247.	.		.			ES	.	0 1720	24	09	85	CRD	CNP3	0		
01000	RT	262.	.		.			ES	.	0 1721	24	09	85	CRD	CNP3	0		
01004	RT	274.	.		.			ES	.	0 1722	24	09	85	CRD	CNP3	0		
01005	RT	409.	.		.			ES	.	0 1723	24	09	85	CRD	CNP3	0		
01006	RT	327.	.		.			ES	.	0 1723	24	09	85	CRD	CNP3	0		
01269	RT	325.	450.		.			ES	.	0 1724	24	09	85	CRD	CNP3	0		
01007	RT	296.	.		.			ES	.	0 1724	08	10	85	CRD	ES 3	3		
01008	RT	338.	.		.			ES	.	0 1725	24	09	85	CRD	CNP3	0		
01009	RT	349.	.		.			ES	.	0 1726	24	09	85	CRD	CNP3	0		
01011	RT	444.	.		.			ES	.	0 1727	24	09	85	CRD	CNP3	0		
01012	RT	446.	.		.			ES	.	0 1728	24	09	85	CRD	CNP3	0		
01013	RT	304.	.		.			ES	.	0 1729	24	09	85	CRD	CNP3	0		
01014	BNT	235.	.		.			ES	.	0 1730	24	09	85	CRD	CNP3	0		
01015	RT	396.	.		.			ES	.	0 1731	24	09	85	CRD	CNP3	0		
01016	RT	235.	.		.			ES	.	0 1732	24	09	85	CRD	CNP3	0		
01017	DV	486.	.		.			ES	.	0 1733	24	09	85	CRD	CNP3	0		
01020	RT	285.	.		.			ES	.	0 1734	24	09	85	CAS	CAP1	0		
01021	RT	218.	.		.			ES	.	0 1735	24	09	85	CAS	CAP1	0		
01035	RT	390.	730.		.	3	SC	ES	.	0 1737	02	10	85	CRD	CNP2	0		
01036	RT	408.	570.		.	3	SC	ES	.	0 1738	02	10	85	CRD	CNP2	0		
01040	RT	239.	.		.	1	SC	ES	.	0 1739	02	10	85	CRD	CNP1	0		
01042	BNT	273.	.		.	1	SC	ES	.	0 1740	02	10	85	CRD	CNP1	0		
01049	RT	362.	.		.			ES	.	0 1741	02	10	85	CRD	CNP1	0		
01050	RT	386.	850.		.	2	SC	ES	.	0 1742	02	10	85	CRD	CNP1	0		
01051	RT	313.	410.		.	2	SC	ES	.	0 1743	02	10	85	CRD	CNP1	0		
01052	CT	288.	1744		.	2	SC	ES	.	0 1744	02	10	85	CRD	CNP1	0		
01054	MW	332.	420.	17	.	6	SC	ES	.	0 1745	02	10	85	CRD	CNP1	0		
01057	MW	278.	.	17	.		SC	ES	.	0 1746	02	10	85	CRD	CNP1	0		
01058	BNT	232	180.	20	.	1	SC	ES	.	0 1747	02	10	85	CRD	CNP1	0		
01060	BNT	348.	610.	20	.	2	SC	ES	.	0 1748	02	10	85	CRD	CNP1	0		
01062	RT	365.	740.		.	2	SC	ES	.	0 1749	03	10	85	OLD	ONP1	0		RUN # 1
01063	RT	288.	280.		.	2	SC	ES	.	0 1750	03	10	85	OLD	ONP1	0		
01413	MW	251.	.	8	.	3	SC	ES	.	0 1751	18	10	85	OLD	ES 1	0		
01414	MW	276.	.	8	.		SC	ES	.	0 1752	18	10	85	OLD	ES 1	0		
01431	MW	314.	.	8	.	5	SC	ES	.	0 1753	18	10	85	OLD	ES 1	0		
01432	MW	362.	.	8	.			ES	.	0 1754	18	10	85	OLD	ES 1	0		
01433	MW	349.	.	18	.	5	SC	ES	.	0 1755	18	10	85	OLD	ES 1	0		
01434	LING	451	.		.			ES	.	0 1756	18	10	85	OLD	ES 1	0		
01422	MW	296.	.	8	.		SC	ES	.	0 1757	18	10	85	OLD	ES 1	0		
01423	MW	269.	.	8	.	3	SC	ES	.	0 1758	18	10	85	OLD	ES 1	0		
01424	MW	274.	.	8	.	3	SC	ES	.	0 1759	18	10	85	OLD	ES 1	0		
01462	RT	374.	630.		.	3	SC	ES	.	0 1760	18	10	85	OLD	ES 1	0		
01463	BNT	561	1050.	10	.		SC	ES	.	0 1761	18	10	85	OLD	ES 1	0		
01440	MW	332.	.		.			ES	.	0 1762	18	10	85	OLD	ES 1	0		
01442	MW	284.	240.	8	.	4	SC	ES	.	0 1763	18	10	85	OLD	ES 1	0		
01443	MW	280.	270.	18	.		SC	ES	.	0 1764	18	10	85	OLD	ES 1	0		
01444	MW	276.	245.	18	.		SC	ES	.	0 1765	18	10	85	OLD	ES 1	0		
01445	MW	287.	275.	18	.		SC	ES	.	0 1766	18	10	85	OLD	ES 1	0		
01446	MW	263.	215.	18	.		SC	ES	.	0 1767	18	10	85	OLD	ES 1	0		
01447	MW	268.	220.	18	.		SC	ES	.	0 1768	18	10	85	OLD	ES 1	0		
01448	MW	273.	235.	8	.		SC	ES	.	0 1769	18	10	85	OLD	ES 1	0		
01449	MW	276.	240.	8	.		SC	ES	.	0 1770	18	10	85	OLD	ES 1	0		
01450	MW	288.	270.	8	.	4	SC	ES	.	0 1771	18	10	85	OLD	ES 1	0		
01451	MW	288.	280.	18	.	4	SC	ES	.	0 1772	18	10	85	OLD	ES 1	0		
01452	MW	263.	.	8	.			ES	.	0 1773	18	10	85	OLD	ES 1	0		
01453	MW	250.	180.		.			ES	.	0 1774	18	10	85	OLD	ES 1	0		
01454	MW	250.	.	18	.			ES	.	0 1775	18	10	85	OLD	ES 1	0		
01091	RT	375.	700.		.			ES	.	0 2408	04	10	85	CRD	ES 2	2		
0 503	MW	215.	145.		.			ES	.	0 5114	20	08	85	CRD	ES 3	2		
0 75	MW	221.	.		.			ES	.	0 5848	17	08	85	CAS	ES 1	2		
01261	RT	445.	1180.		.			ES	.	0 7851	05	10	85	CRD	ES 3	0		
01262	RT	355.	565.		.			ES	.	0 7852	05	10	85	CRD	ES 3	0		
01263	RT	280.	320.		.			ES	.	0 7853	05	10	85	CRD	ES 3	0		
01264	RT	369.	750.		.			ES	.	0 7854	05	10	85	CRD	ES 3	0		
01265	RT	413.	880.		.			ES	.	0 7855	05	10	85	CRD	ES 3	0		
01317	DV	462.	1040.		.	4	SC	ES	.	0 7856	10	10	85	CAS	ES 1	0		
01268	RT	294.	400.		.			ES	.	0 7857	05	10	85	CRD	ES 3	0		
01271	RT	445.	1240.		.			ES	.	0 7858	05	10	85	CRD	ES 3	0		
01272	RT	455.	1230.		.			ES	.	0 7859	05	10	85	CRD	ES 3	0		
01273	RT	296.	325.		.			ES	.	0 7860	05	10	85	CRD	ES 3	0		
01274	RT	347.	615.		.			ES	.	0 7861	05	10	85	CRD	ES 3	0		
01275	RT	386.	810.		.			ES	.	0 7862	05	10	85	CRD	ES 3	0		
01276	RT	411.	1010.		.			ES	.	0 7863	05	10	85	CRD	ES 3	0		
01278	BNT	253.	195.		.	1	SC	ES	.	0 7864	05	10	85	CRD	ES 3	0		
01279	RT	239.	180.		.			ES	.	0 7865	05	10	85	CRD	ES 3	0		
01280	BNT	443.	1140.	17	.	2	SC	ES	.	0 7866	05	10	85	CRD	ES 3A	0		
01281	BNT	526.	1750.	8	.			ES	.	0 7867	05	10	85	CRD	ES 3A	0		
01282	MW	371.	675.	8	.			ES	.	0 7868	05	10	85	CRD	ES 3A	0		
01283	RT	385.	870.		.			ES	.	0 7869	05	10	85	CRD	ES 3A	0		
01284	BNT	563.	.	7	.			ES	.	0 7870	05	10	85	CRD	ES 3A	0		ESCAPED
01285	MW	429.		17	.			ES	.	0 7871	05	10	85	CRD	ES 3A	0		
01286	RT	423.	1175.		.			ES	.	0 7872	05	10	85	CRD	ES 3A	0		
01287	RT	525.	1850.		.			ES	.	0 7873	05	10	85	CRD	ES 3A	0		
01288	MW	435.	1230.		.			ES	.	0 7874	05	10	85	CRD	ES 3A	0		
01289	RT	323.	455.		.			ES	.	0 7875	05	10	85	CRD	ES 3A	0		
01290	RT	341	643		.			ES	.	0 7876	05	10	85	CRD	ES 3A	0		
01291	RT	304.	380.		.			ES	.	0 7877	05	10	85	CRD	ES 3A	0		
01292	RT	320.	420.		.			ES	.	0 7878	05	10	85	CRD	ES 3A	0		
01293	BNT	392.	815.	10	.	2	SC	ES	.	0 7879	05	10	85	CRD	ES 3A	0		
01320	DV	327.	435.		.			ES	.	0 7880	10	10	85	CAS	ES 1	0		
01321	RT	315.	400.		.	3	SC	ES	.	0 7881	10	10	85	CAS	ES 1	0		
01323	LING	525.	980.		.			ES	.	0 7882	10	10	85	CAS	ES 1	0		
01324	MW	314.	325.	8	.			ES	.	0 7883	10	10	85	CAS	ES 1	0		
01325	MW	380.	660.	8	.	7	SC	ES	.	0 7884	10	10	85	CAS	ES 1	0		
01326	MW	288.	280.	8	.	4	SC	ES	.	0 7885	10	10	85	CAS	ES 1	0		
01327	MW	285.	300.	8	.	4	SC	ES	.	0 7886	10	10	85	CAS	ES 1	0		
01328	MW	252.	180.	8	.	3	SC	ES	.	0 7887	10	10	85	CAS	ES 1	0		
01329	MW	278.	255.	8	.	5	SC	ES	.	0 7888	10	10	85	CAS	ES 1	0		
01330	MW	267.	230.	8	.	4	SC	ES	.	0 7889	10	10	85	CAS	ES 1	0		
01331	MW	261.	245.	8	.	3	SC	ES	.	0 7890	10	10	85	CAS	ES 1	0		
01332	MW	257.	210.	8	.	3	SC	ES	.	0 7891	10	10	85	CAS	ES 1	0		
01335	RT	223.	140.		.	2	SC	ES	.	0 7892	10	10	85	CAS	ES 1	0		
01336	RT	232.	180.		.	3	SC	ES	.	0 7893	10	10	85	CAS	ES 1	0		
01339	DV	357.	610.		.	3	SC	ES	.	0 7894	10	10	85	CAS	ES 1	0		
01340	RT	344.	520.		.	3	SC	ES	.	0 7895	10	10	85	CAS	ES 1	0		
01341	RT	256.	215.		.	3	SC	ES	.	0 7896	10	10	85	CAS	ES 1	0		
01343	RT	211.	110.		.	2	SC	ES	.	0 7897	10	10	85	CAS	ES 1	0		
01344	RT	221.	125.		.		SC	ES	.	0 7898	10	10	85	CAS	ES 1	0		
01353	RT	419.	.		.			ES	.	0 7899	17	10	85	CRD	CNP3	0		
01364	RT	369.	.		.	3	SC	ES	.	0 7900	17	10	85	CRD	CNP3	0		

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                                  RL&L ENVIRONMENTAL SERVICES LTD.
                              FISHERIES DATA - PRINT OUT BY TAG NUMBER
                              ****************************************

SAMPLE SP.    LENGTH  WEIGHT   SEX-  GONAD AGE AGE   CAPT MESH    TAG       DATE     LOCATION  SITE CAPT PRES        COMMENTS
  NO.          (MM)    (G)     MAT.  WT(G)     METH  METH (CM)    NO.    DAY MO YR                   CODE CODE
-------------------------------------------------------------------------------------------------------------------------------
 01142 BNT     265.     280.           .    1  SC     ES    .   0 7901   04 10 85   CRO      ES 2     0
 01145 RT      495.    1680.           .    4  SC     ES    .   0 7902   04 10 85   CRO      ES 1     0
 01146 RT      353.     700.           .    3  SC     ES    .   0 7903   04 10 85   CRO      ES 1     0
 01147 RT      362.        .           .              ES    .   0 7904   04 10 85   CRO      ES 1     0
 01148 MW      288.     280.    17     .              ES    .   0 7905   04 10 85   CRO      ES 1     0
 01158 RT      563.    2380.           .              ES    .   0 7906   04 10 85   CRO      ES 1     0
 01159 RT      584.    2480.           .              ES    .   0 7907   04 10 85   CRO      ES 1     0
 01160 RT      344.     550.           .              ES    .   0 7908   04 10 85   CRO      ES 1     0
 01161 RT      410.     880.           .              ES    .   0 7909   04 10 85   CRO      ES 1     0
 01162 RT      288.     390.           .              ES    .   0 7910   04 10 85   CRO      ES 1     0
 01163 RT      222.     180.           .              ES    .   0 7911   04 10 85   CRO      ES 1     0
 01164 MW      482.    1300.    17     .   10  SC     ES    .   0 7912   04 10 85   CRO      ES 1     0
 01165 MW      346.     560.    17     .              ES    .   0 7913   04 10 85   CRO      ES 1     0
 01169 MW      289.     280.     7     .              ES    .   0 7914   04 10 85   CRO      ES 1     0
 01171 MW      265.     270.     7     .              ES    .   0 7915   04 10 85   CRO      ES 1     0
 01175 RT      340.     480.           .              ES    .   0 7916   04 10 85   CRO      ES 1     0
 01176 RT      330.     550.           .              ES    .   0 7917   04 10 85   CRO      ES 1     0
 01177 RT      445.    1480.           .              ES    .   0 7918   04 10 85   CRO      ES 1     0
 01178 RT      284.     290.           .              ES    .   0 7919   04 10 85   CRO      ES 1     0
 01179 BNT     247.     200.           .    1  SC     ES    .   0 7920   04 10 85   CRO      ES 1     0
 01181 RT      290.     355.           .              ES    .   0 7921   04 10 85   CRO      ES 1     0
 01183 RT      272.     240.           .              ES    .   0 7922   04 10 85   CRO      ES 1     0
 01184 RT      283.     250.           .              ES    .   0 7923   04 10 85   CRO      ES 1     0
 01187 RT      288.     220.           .              ES    .   0 7924   04 10 85   CRO      ES 1     0
 01188 RT      230.     130.           .              ES    .   0 7925   04 10 85   CRO      ES 1     0
 01190 RT      249.     215.           .              ES    .   0 7926   04 10 85   CRO      ES 1     0
 01191 RT      344.     680.           .              ES    .   0 7927   04 10 85   CRO      ES 1     0
 01192 RT      363.     750.           .              ES    .   0 7928   04 10 85   CRO      ES 1     0
 01193 RT      265.     220.           .              ES    .   0 7929   04 10 85   CRO      ES 1     0
 01194 RT      250.     280.           .              ES    .   0 7930   04 10 85   CRO      ES 1     0
 01195 RT      347.     500.           .              ES    .   0 7931   04 10 85   CRO      ES 1     0
 01196 RT      248.     190.           .              ES    .   0 7932   04 10 85   CRO      ES 1     0
 01197 RT      329.     480.           .              ES    .   0 7933   04 10 85   CRO      ES 1     0
 01198 RT      254.     200.           .              ES    .   0 7934   04 10 85   CRO      ES 1     0
 01199 RT      259.     230.           .              ES    .   0 7935   04 10 85   CRO      ES 1     0
 01200 BNT     259.     275            .              ES    .   0 7936   04 10 85   CRO      ES 1     0
 01201 RT      257.     200            .              ES    .   0 7937   04 10 85   CRO      ES 1     0
 01203 RT      488.                    .              ES    .   0 7938   04 10 85   CRO      ES 1     0
 01208 DV      459.                    .              ES    .   0 7939   04 10 85   CRO      ES 1     0
 01204 RT      465.                    .              ES    .   0 7940   04 10 85   CRO      ES 1     0
 01205 RT      320.                    .              ES    .   0 7941   04 10 85   CRO      ES 1     0
 01219 RT      381.     840.           .              ES    .   0 7942   05 10 85   CRO      ES 3     0
 01220 MW      402.     960.     7     .              ES    .   0 7943   05 10 85   CRO      ES 3     0
 01249 RT      380.     810.           .              ES    .   0 7944   05 10 85   CRO      ES 3     0
 01239 BNT     581.    2700.           .              ES    .   0 7945   05 10 85   CRO      ES 3     0
 01250 BNT     402.     760.     8     .              ES    .   0 7946   05 10 85   CRO      ES 3     0          SCALES EMBEDDED
 01251 BNT     411.     925.     7     .              ES    .   0 7947   05 10 85   CRO      ES 3     0
 01252 BNT     269.     255.    10     .    1  SC     ES    .   0 7948   05 10 85   CRO      ES 3     0
 01258 RT                              .              ES    .   0 7949   05 10 85   CRO      ES 3     0          ESCAPED
 01259 RT      237.                    .              ES    .   0 7950   05 10 85   CRO      ES 3     0
 01066 MW      275.     280.    17     .    3  SC     ES    .   0 7951   03 10 85   OLD      DMP1     0          RUN # 1
 01067 MW      397.     620.     7     .    4  SC     ES    .   0 7952   03 10 85   OLD      DMP1     0          RUN # 2
 01069 LING    735.                    .              ES    .   0 7953   03 10 85   OLD      DMP1     0
 01071 RT      400.     950            .    3  SC     ES    .   0 7954   04 10 85   CRO      ES 2     0
 01072 RT      404.     920            .    3  SC     ES    .   0 7955   04 10 85   CRO      ES 2     0
 01073 RT      392.     880.           .    3  SC     ES    .   0 7956   04 10 85   CRO      ES 2     0
 01074 RT      383.     675.           .    3  SC     ES    .   0 7957   04 10 85   CRO      ES 2     0
 01075 MW      308.     350.    17     .              ES    .   0 7958   04 10 85   CRO      ES 2     0
 01076 MW      295.     350.     8     .              ES    .   0 7959   04 10 85   CRO      ES 2     0
 01077 MW      310.     300.     7     .              ES    .   0 7960   04 10 85   CRO      ES 2     0
 01086 RT      338.     530.           .    2  SC     ES    .   0 7961   04 10 85   CRO      ES 2     0
 01087 RT      335.     470.           .    2  SC     ES    .   0 7962   04 10 85   CRO      ES 2     0
 01092 RT      329.     550.           .    2  SC     ES    .   0 7963   04 10 85   CRO      ES 2     0
 01088 RT      496.    1620.           .              ES    .   0 7964   04 10 85   CRO      ES 2     0          SCALES EMBEDDED
 01083 RT      345.     580.           .    2  SC     ES    .   0 7965   04 10 85   CRO      ES 2     0
 01094 RT      270.     275.           .    2  SC     ES    .   0 7966   04 10 85   CRO      ES 2     0
 01096 BNT     275.     310.    20     .    1  SC     ES    .   0 7967   04 10 85   CRO      ES 2     0
 01097 BNT     318.     490.    10     .    1  SC     ES    .   0 7968   04 10 85   CRO      ES 2     0
 01100 RT      473.    1420            .    4  SC     ES    .   0 7969   04 10 85   CRO      ES 2     0
 01101 RT      304.     400            .              ES    .   0 7970   04 10 85   CRO      ES 2     0
 01102 RT      347.     675            .              ES    .   0 7971   04 10 85   CRO      ES 2     0
 01103 RT      382.     765            .              ES    .   0 7972   04 10 85   CRO      ES 2     0
 01104 RT      344.     570            .              ES    .   0 7973   04 10 85   CRO      ES 2     0
 01105 RT      271.     300            .              ES    .   0 7974   04 10 85   CRO      ES 2     0
 01106 RT      319.     510            .              ES    .   0 7975   04 10 85   CRO      ES 2     0
 01109 RT      419.    1140            .              ES    .   0 7976   04 10 85   CRO      ES 2     0
 01363 RT      419.                    .              ES    .   0 7876   17 10 85   CRO      CHP3     1
 01110 RT      382.     880            .              ES    .   0 7877   04 10 85   CRO      ES 2     0
 01111 RT      304.     380            .              ES    .   0 7878   04 10 85   CRO      ES 2     0
 01113 RT      484.    1550            .              ES    .   0 7880   04 10 85   CRO      ES 2     0
 01114 RT      318.     500            .              ES    .   0 7881   04 10 85   CRO      ES 2     0
 01115 RT      337.     580            .              ES    .   0 7882   04 10 85   CRO      ES 2     0
 01116 RT      325.     580            .              ES    .   0 7883   04 10 85   CRO      ES 2     0
 01117 RT      314.     440            .              ES    .   0 7884   04 10 85   CRO      ES 2     0
 01118 RT      516.    1780            .              ES    .   0 7885   04 10 85   CRO      ES 2     0
 01119 RT      394.     860            .              ES    .   0 7886   04 10 85   CRO      ES 2     0
 01120 RT      352.     590            .              ES    .   0 7887   04 10 85   CRO      ES 2     0
 01121 RT      423.    1090            .              ES    .   0 7888   04 10 85   CRO      ES 2     0
 01122 RT      337.     640            .              ES    .   0 7889   04 10 85   CRO      ES 2     0
 01123 RT      336.     540            .              ES    .   0 7890   04 10 85   CRO      ES 2     0
 01125 MW      306.     330.     8     .              ES    .   0 7891   04 10 85   CRO      ES 2     0
 01127 BNT     275.     300.           .              ES    .   0 7892   04 10 85   CRO      ES 2     0
 01129 MW      312.     390.    17     .              ES    .   0 7893   04 10 85   CRO      ES 2     0
 01130 MW      382.     810.    17     .              ES    .   0 7894   04 10 85   CRO      ES 2     0
 01131 MW      265.     280.     7     .              ES    .   0 7895   04 10 85   CRO      ES 2     0
 01132 MW      304.     340.     7     .              ES    .   0 7896   04 10 85   CRO      ES 2     0
 01133 MW      328.     440.     7     .              ES    .   0 7897   04 10 85   CRO      ES 2     0
 01137 RT      385.     860.           .              ES    .   0 7898   04 10 85   CRO      ES 2     0
 01140 BNT     261.     275.           .    1  SC     ES    .   0 7899   04 10 85   CRO      ES 2     0
 01141 BNT     256.     230.           .    1  SC     ES    .   0 8000   04 10 85   CRO      ES 2     0
 01380 RT      531.        .           .              ES    .   0 8776   17 10 85   CRO      CHP3     0
 01364 RT      371.        .           .              ES    .   0 8877   17 10 85   CRO      CHP3     0
 01366 RT      437.        .           .              ES    .   0 8878   17 10 85   CRO      CHP3     0
 01367 RT      475.        .           .              ES    .   0 8880   17 10 85   CRO      CHP3     0
 01369 RT      403.        .           .              ES    .   0 8881   17 10 85   CRO      CHP3     0
 01370 RT      332.        .           .              ES    .   0 8882   17 10 85   CRO      CHP3     0
 01371 RT      346.        .           .              ES    .   0 8883   17 10 85   CRO      CHP3     0
 01372 RT      387.        .           .              ES    .   0 8884   17 10 85   CRO      CHP3     0
 01373 RT      347.        .           .              ES    .   0 8885   17 10 85   CRO      CHP3     0
 01374 RT      308.        .           .              ES    .   0 8886   17 10 85   CRO      CHP3     0
 01382 RT      312.        .           .              ES    .   0 8887   17 10 85   CRO      CHP3     0
 01383 BNT     306.        .           .              ES    .   0 8888   17 10 85   CRO      CHP3     0
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SAMPLE NO.	SP.	LENGTH (MM)	WEIGHT (G)	SEX-MAT.	GONAD WT(G)	AGE	AGE METH	CAPT METH	MESH (CM)	TAG NO.	DATE DAY	MO	YR	LOCATION	SITE	CAPT CODE	PRES CODE	COMMENTS
01384	RT	326.	.		.			ES	.	O 8889	17	10	85	CRB	CHP3	0		
01385	BNT	369.	.	10	.			ES	.	O 8890	17	10	85	CRB	CHP3	0		
01401	RT	419.	.		.	3	SC	ES	.	O 8891	17	10	85	CRB	CHP3	0		
01402	BNT	536.	.	18	.	5	SC	ES	.	O 8893	17	10	85	CRB	CHP3	0		EGG DIAM = 4.4 mm
01403	MW	322.	.	8	.	5	SC	ES	.	O 8894	19	10	85	OLD	ES 1	0		ES1
01404	MW	311.	.	8	.	5	SC	ES	.	O 8895	19	10	85	OLD	ES 1	0		
01406	MW	300.	.	8	.	4	SC	ES	.	O 8896	19	10	85	OLD	ES 1	0		
01407	MW	265.	.	8	.	3	SC	ES	.	O 8897	19	10	85	OLD	ES 1	0		
01408	MW	291.	.	8	.	4	SC	ES	.	O 8898	19	10	85	OLD	ES 1	0		
01409	MW	262.	.	8	.	3	SC	ES	.	O 8899	19	10	85	OLD	ES 1	0		
01410	MW	272.	.	8	.		SC	ES	.	O 8900	19	10	85	OLD	ES 1	0		
0 852	RT	310.	.		.			ES	.	Y 4419	20	08	85	CRB	CHP3	0		
0 853	RT	246.	.		.			ES	.	Y 4420	20	08	85	CRB	CHP3	0		
0 851	BNT	365.	.		.			ES	.	Y 4421	20	08	85	CRB	CHP3	0		RUN # 1

APPENDIX E

Sportfish Population Estimates

E1 - Population Estimation Procedures

E2 - Summary of fish marked and recaptured in population survey sections in the Oldman River Dam Study Area, 1985.

E3 - Estimated size of the three major sportfish populations in section CNP3, Crowsnest River, September 1985.

Appendix E1 Population Estimation Procedures.

Population estimates were calculated only for CNP3, as in the other population sections insufficient cohorts of marked/unmarked fish were obtained for valid analysis. A summary of fish marked and recaptured in all population sections is provided in Appendix E2.

The population estimate procedures used were those for multiple censuses (Schnabel type) in which marking and recapture are done concurrently. In theory, this method requires that the population remain constant with no recruitment or no mortality during the experiment although in practice it is a useful procedure even if these conditions are only approximately satisfied (Ricker 1975). Other conditions that must be met for a valid application of estimating procedures are described in detail by Ricker (1975) and are assumed to have been met for this study's results.

The population estimates for section CNP3, calculated by the different methods employed, are given in Table C4. Based on the numbers of recaptures (i.e., 3 or more) for each species, the estimates are considered valid and free from statistical bias.

In an effort to obtain a population estimate for each sportfish species in the section of the Crowsnest River below Lundbreck Falls, an extrapolation method was devised using a ratio of CPUE (catch/km) and estimated population size at CNP3 to CPUE in each of the general survey sections (i.e., ES1, ES2, and ES3) in August and October. This extrapolation procedure was in the form of

$$\frac{CPUE_i}{CPUE_k} = \frac{P_i}{x(D)}$$

$CPUE_i$ = catch/km for a particular species from population section CNP3

P_i = the estimated population of that particular species in section CNP3

$CPUE_k$ = the catch/km for that species in a general survey section (e.g., ES1)

x = the population estimate (in number of fish/km) for the general survey section

D = the total length of the general survey section (in km).

This procedure makes the assumption that the capture efficiency for all species was the same for all sampling sections. In the case of brown trout and rainbow trout this is considered a valid assumption. For mountain whitefish, however, definite biases in capture efficiency occurred between sample sections, particularly in the August period. During August, mountain whitefish were often so abundant, that no attempt was made to net the fish but simply to estimate the numbers observed. Also, if a trout was observed among a group of stunned mountain whitefish, capture effort was directed towards the trout. As a result, the actual numbers of mountain whitefish captured considerably underestimate the actual abundance of this species. To compensate for this underestimation, population estimates for mountain whitefish in the Crowsnest River were calculated using CPUE values that included 50% of the mountain whitefish observed. The 50 percentile value was selected as this was the average capture efficiency recorded for this species during sampling in other river sections (i.e., Oldman and Castle rivers) where an attempt was made to net all fish observed.

Appendix E2 Summary of fish marked and recaptured in population survey sections in the Oldman River Dam Study Area, 1985.

		Brown trout				Mountain whitefish				Rainbow trout			
Section	Date	No. Caught	No. Recaptures	No. Marked	Marked Fish at Large	No. Caught	No. Recaptures	No. Marked	Marked Fish at Large	No. Caught	No. Recaptures	No. Marked	Marked Fish at Large
CNP1	2 Oct.	2	0	2	0	5	0	5	0	3	0	3	0
	2 Oct.	0	0	0	2	1	0	1	5	3	0	3	3
	2 Oct.	2	0	2	2	5	0	5	6	1	0	1	6
	4 Oct.	5	0	5	4	0	0	0	11	2	0	2	7
CNP2[a]	2 Oct.	0	0	0	0	1	0	0	0	3	0	0	0
CNP3	20 Sep.	10	0	10	0	151	0	151	0	35	0	35	0
	20 Sep.	4	0	4	10	84	4	80	151	24	0	24	35
	21 Sep.	13	0	13	14	175	13	162	231	36	3	33	59
	24 Sep.	6	3	2	27	85	13	72	393	37	4	33	92
OMP1[b]	3 Oct.	0	0	0	0	1	0	1	0	4	0	4	0
	3 Oct.	0	0	0	0	2	0	2	1	0	0	0	4
CAP1	22 Sep.	0	0	0	0	2	0	2	0	2	0	2	0
	24 Sep.	0	0	0	0	12	0	12	2	5	0	5	2
	24 Sep.	0	0	0	0	15	0	15	14	1	0	1	7
	26 Sep.	0	0	0	0	1	0	1	29	8	0	8	8
	26 Sep.	0	0	0	0	2	0	0	30	3	0	3	16

[a] sampling discontinued after one run due to low fish densities.
[b] sampling discontinued after two runs due to low fish densities.

Appendix E3 Estimated size of the three major sportfish populations in section CNP3[a], Crowsnest River, September 1985.

Method	Brown trout		Mountain whitefish		Rainbow trout	
	N	C.I.[b]	N	C.I.	N	C.I.
A) Schumacher & Eshmeyer $\frac{1}{N} = \frac{\sum(MR)}{\sum(CM)^2}$	90	61 - 171	2797	1399 - 3394	859	571 - 1726

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[a] based on 3 marking runs and 1 recapture run through Section CNP3 from 20 to 24 September 1985.

[b] 95% confidence range of the mean.

APPENDIX F

Resource Use

F1 - Creel Survey Methods; Analysis/Extrapolation Procedures; Factors Influencing Estimates
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F7 - Estimates of total angler hours and total anglers - Upper Crowsnest River.
F8 - Estimates of total angler hours and total anglers - Lower Crowsnest River.
F9 - Estimates of total angler hours and total anglers - Oldman River.
F10 - Estimates of total angler hours and total anglers - Castle River.
F11 - Summary of catch and CPUE for interviewed anglers - Upper Crowsnest River.
F12 - Summary of catch and CPUE for interviewed anglers - Lower Crowsnest River.
F13 - Summary of catch and CPUE for interviewed anglers - Oldman River.
F14 - Summary of catch and CPUE for interviewed anglers - Castle River.

APPENDIX F1

1.0 CREEL SURVEY METHODS

1.1 Sampling Schedule Selection

The sampling schedule for the 1985 creel survey was selected within the constraints imposed by budgetary considerations and the higher priority given to electrofishing surveys that often required the assistance of a third person (i.e., the creel clerk). The weekday and weekend/holiday schedule used in the present study is presented in Tables a and b respectively.

The daily sample period variables were subjectively chosen. Since differences in daily angler use patterns were previously unknown from the study area, a subjective effort was made to equalize the sampling effort for the three daily sample periods. To account for differences in length of available daylight hours, the length of the daily sample periods and the time of their commencement and cessation were altered over the study period as follows:

August period:	Morning (MOR) - 0830 to 1230 hours = 4 hours
	Afternoon (AFT) - 1230 to 1630 hours = 4 hours
	Evening (EVE) - 1630 to 2130 hours = 5 hours
Sep.-Oct. period:	Morning (MOR) - 0830 to 1230 hours = 4 hours
	Afternoon (AFT) - 1230 to 1630 hours = 4 hours
	Evening (EVE) - 1630 to 2030 hours = 4 hours

1.2 Survey Procedures

The creel survey consisted of a survey clerk driving to each of the designated access sites in a particular study section within the daily time period selected for sampling. In general, two study sections were sampled on each day. At each access site all anglers present were counted and the numbers recorded on a standard creel survey form (Appendix F2). If vehicles were present at the access site but the occupants could not be located the number of vehicles was recorded and subsequently converted to angler counts using the mean angler/vehicle value (determined from other angler interviews).

In addition to conducting a count of anglers at each site, the clerk interviewed anglers to obtain information on catch, effort, and angler characteristics. Information gathered included the following: residence; angling method (i.e., bait, fly, lure, etc.);

Table a. Weekday sampling schedule for the census activities in the Oldman River Dam Study Area, August to November 1985.

	Date (Day)	Study Section[a] (Census Period)[b]		
August	2 Fri.	CA, OM, LCN, UCN (AFT-EVE)		
	6 Tue.	CA, UCN, LCN, OM (MOR-EVE)		**Synoptic Census**
	7-8 Wed. + Thur.	Days off		
	9 Fri.	OM, CA, UCN, LCN (AFT-EVE)		
	12-13 Mon. + Tue.	Days off		
	14 Wed.	UCN, CA, OM, LCN (AFT-EVE)		
	15 Thur.	OM (MOR)[c]		
	16 Fri.	-	UCN (EVE)	
	19 Mon.	LCN (AFT)	CA (EVE)	
	20 Tue.	OM (AFT)	UCN (EVE)	
	21 Wed.	OM (MOR)	LCN (EVE)	
	22 Thur.	LCN (MOR)	CA (AFT)	
	23 Fri.	UCN (AFT)	OM (EVE)	
	26 Mon.	CA (MOR)	LCN (EVE)	**Systematic Census**
	27-29 Tue.-Thur.	Days off		
	30 Fri.	UCN (MOR)	CA (EVE)	
September	3-6 Tue.-Fri.	Not sampled		
	9-13 Mon.-Fri.	Not sampled		
	16-17 Mon.-Tue.	Not sampled		
	18 Wed.	LCN (AFT)	CA (EVE)	
	19-20 Thur.-Fri.	Days off		
	23-25 Mon.-Wed.	Days off		
	26 Thur.	CA (MOR)	LCN (EVE)	
	27 Fri.	Day off		
	30 Mon.	CA (AFT)	UCN (EVE)	
October	1 Tue.	LCN (MOR)	CA (EVE)	
	2-4 Wed.-Fri.	Days off		
	7-8 Mon.-Tue.	Days off		
	9 Wed.	OM (MOR)	LCN (EVE)	
	10-11 Thur.-Fri.	Days off		
	15-16 Tue.-Wed.	Days off		
	17 Thur.	UCN (MOR)	OM (EVE)	
	18 Fri.	Days off		
	21 Mon.	LCN (MOR)	OM (AFT)	
	22 Tue.	OM (AFT)	-	
	23 Wed.	UCN (MOR)	CA (AFT)	
	24 Thur.	LCN (MOR)	OM (AFT)	
	25 Fri.	CA (AFT)	UCN (MOR) & (EVE)	
	28 Mon.	LCN (MOR)	OM (EVE)	
	29-31 Tue.-Thur.	Days off		

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[a] CA = Castle River; OM = Oldman River; UCN = Upper Crowsnest River (above FSL); LCN = Lower Crowsnest River (below FSL).

[b] MOR = 0830-1230; AFT = 1230-1630; EVE = 1630-2100 in Aug., and 1630-2030 in Sep. to Oct.

[c] Conducted by fisheries crew.

Table b. Weekend/holiday sampling schedule for the census activities in the Oldman River Dam Study Area, August to November 1985.

	Date (Day)	Study Section[a] (Census Period)[b]		
August	3 Sat.	CA, OM, UCN, LCN (AFT-EVE)		**Synoptic Census**
	4 Sun.	OM, LCN, UCN, CA (MOR-EVE)		
	5 Mon.	OM, LCN, UCN, CA (AFT-EVE)		
	10 Sat.	CA, UCN, LCN, OM (MOR-EVE)		
	11 Sun.	OM, LCN, UCN, CA (MOR-EVE)		
	17 Sat.	CA (MOR)	LCN (AFT)	**Systematic Census**
	18 Sun.	UCN (AFT)	OM (EVE)	
	24 Sat.	OM (MOR)	UCN (EVE)	
	25 Sun.	LCN (MOR)	CA (EVE)	
	31 Sat.	UCN (MOR)	LCN (EVE)	
September	1 Sun.	UCN (AFT)	CA (EVE)	
	2 Mon.	LCN (MOR)	-	
	7-8 Sat.-Sun.	-		
	14-15 Sat.-Sun.	-		
	21 Sat.	LCN (MOR)	OM (AFT)	
	22 Sun.	CA (AFT)	UCN (EVE)	
	28 Sat.	CA (MOR)	LCN (AFT)	
	29 Sun.	UCN (AFT)	OM (EVE)	
October	5-6 Sat.-Sun.	Days off		
	12 Sat.	UCN (MOR)	CA (EVE)	
	13 Sun.	OM (MOR)	LCN (EVE)	
	14 Mon.	LCN (AFT)	OM (EVE)	
	19 Sat.	OM (AFT)	UCN (EVE)	
	20 Sun.	LCN (MOR)	CA (AFT)	
	26 Sat.	OM (MOR)	LCN (EVE)	
	27 Sun.	UCN (AFT)	CA (EVE)	
November	2 Sat.	OM (MOR)	OM (AFT)	
	3 Sun.	UCM (MOR)	OM (AFT-EVE)	

[a] CA = Castle River; OM = Oldman River; UCN = Upper Crowsnest River (above FSL); LCN = Lower Crowsnest River (below FSL).

[b] MOR = 0830-1230; AFT = 1230-1630; EVE = 1630-2130 in August and 1630-2030 in Sep. to Oct.

number and species of fish captured, the species of fish the angler was selectively fishing for; number of previous visits to that particular system in the current calendar year; and an assessment of the quality of fishing for that day and, if fished previously, on an overall basis. Data were recorded on a standard creel survey form (Appendix F2).

1.3 Data Analysis/Extrapolation Procedures

1) The variables in each stratum were selected on the basis of their relative importance in terms of expected difference in angler use patterns. In the present study the data were stratified using the variables of daily sample period (i.e., MOR, AFT, and EVE), day-type (i.e., WD = Weekday and WE = Weekend/Holiday), and study site (e.g., CN1, CN2, CN3, CN4, CN5, CN6, and CN7 on the Crowsnest River) for each study section (i.e., Upper Crowsnest River, Lower Crowsnest River, Oldman River, and Castle River). Initially the selection of sampled strata were chosen from available days within the entire study period (i.e., 1 August to 31 October); however, the subsequent differences in observed use in August compared to September and October required the inclusion of a month variable (i.e., Aug. and Sep.-Oct.) in the analysis. The month of August falls within the traditional summer holiday period, and in the present study, exhibited more suitable climatological conditions for outdoor activities than was recorded in the Sep.-Oct. period. Both of these factors served to increase differences in angler use patterns. Unfortunately, the inclusion of this extra variable resulted in sample sizes for several strata being too low (i.e., N less than or equal to 2) to provide reasonable (i.e., less than ± 50%) confidence intervals of the estimates for these strata.

2) The study results were grouped into separate strata for each study section, with site, day-type, daily sample period, and month as the four study variables.

i.e., for Study Section LCN the strata were as follows:

CN1, WD, MOR, Aug.
CN1, WD, AFT, Aug.
CN1, WD, EVE, Aug.
CN1, WE, MOR, Sep.-Oct.
CN1, WE, AFT, Sep.-Oct.
CN1, WE, EVE, Sep.-Oct.
CN1, WD, MOR, Aug.
etc.

3) Total angler hours for a particular study section was estimated by the following procedure (after Malvestuto et al. 1978).

a) For a given daily sample period the fishermen count (c) was multiplied by the number of available angling hours (h) contained within the period to give an estimate of the total angling effort (e) expended during the period at the site sampled.

b) The mean daily angler effort ($\bar{e}_h$) for each stratum was calculated as

$$\bar{e}_h = \left(\sum_{i=1}^{n_h} e_{hi} \right) n_h \quad \text{where}$$

e_{hi} = the expanded angler hours for the i^{th} day within the h^{th} stratum.
n_h = the number of days sampled within the h^{th} stratum.

c) The total angler effort (E_s) for each study section (i.e., LCN, UCN, OR, CA) was calculated as

$$E_s = \sum_{h=1}^{L} N_h (\bar{e}_h) \quad \text{where}$$

E_s = the total effort in study section s
L = the number of strata in study section s
N_h = the total number of available days within the h^{th} stratum.
$\bar{e}_h$ = the mean daily angler effort.

4) Estimates of total anglers (A) for each study section were derived by the expression

$$A_s = \sum_{h=1}^{L} \frac{E_s}{t_s} \quad \text{where}$$

A_s = the total number of anglers in study section s
t_s = the mean length of a completed angler trip for study section s

Although the mean length of completed trips varied substantially between strata, the low numbers of completed anglers interviewed from several sites in all study sections precluded the calculation of mean completed trip data for each strata. To maintain analytical consistency, the mean length of a completed trip was determined using the combined data for all completed anglers within a study section for each of the two month periods (e.g., all completed anglers from all UCN sites in August).

5) Estimates of total angler harvest (C_S) were derived for each fish species within each study section, using CPUE data from combined strata using the expression

$$C_S = \sum_{h=1}^{L} E_S(CPUE_S) \qquad \text{where}$$

C_S = the total catch of a particular species by all anglers in study section s

$CPUE_S$ = the mean catch per hour of that species calculated from the mean of individual angler CPUE's for that species in study section s

E_S = the total number of hours fished by all anglers in study section s

To provide a larger sample size and reduce the occurrence of CPUE values of 0.0 (i.e., nil catches for a particular species) in the calculation of total harvest, both completed and incompleted angler catches were combined, and used to calculate mean monthly CPUE's.

The use of CPUE estimates derived from incompleted trips is based on the assumption that CPUE for incompleted angler trips is an unbiased estimate of CPUE for completed fishing trips. This assumption could not be tested in the present study due to the absence of sufficient numbers of complete and incomplete CPUE's collected from anglers in the same time/space periods; however, results of several previous studies (Hildebrand and Ash 1982; Malvestuto et al. 1978) have concluded that estimates of mean CPUE obtained from incompleted angler trips were unbiased estimates of the mean CPUE of completed trips.

1.4 Factors Influencing Angler Effort and Catch Estimates

1.4.1 Crowsnest River

The present study design sampled 13 of the approximate 17 available daylight hours in the August period. This resulted in an underestimation of angler effort during the unsurveyed portions of the day prior to the MOR period and after the EVE period. Avid trout fishermen exhibit a tendency towards angling during the dawn and dusk periods, particularly during periods of good weather. The underestimation of angler effort during unsurveyed portions in August, when weather was relatively mild, may have been substantial, particularly at Site CN6 (Lundbreck Falls Recreation Area). Anglers camped at this site characteristically fished for relatively short periods of time (i.e., 1 to 2 hours) but often fished several times in one day. This type of angler would likely have fished during suitable early morning and late evening periods. The degree of underestimation likely was reduced in the Sep.-Oct. period due to 1) the shorter daylight period resulting in a greater coverage of the total available angling period, and 2) cooler, less suitable weather conditions during the early morning and late evening periods.

A further, but unquantifiable factor causing underestimation of angler effort, was the omission of anglers not commencing angling activities until after dark. This practice, although not observed in the present study, was reported by local anglers fishing specifically for brown trout. The omission of this angler group also may result in a slight underestimation of brown trout harvest.

The accuracy of anglers in estimating length of time spent fishing was not statistically determined in the present study. Johnson and Wroblewski (1962) found that, although the accuracy of angler estimates of time spent fishing varied considerably, the average estimate was similar to the actual time spent fishing on Many Point Lake in Minnesota. Radford (1973) showed that there was no significant differences between reported and actual fishing times of anglers on a lake in Alberta. For the purposes of this study, the angler estimates of trip duration were assumed to be unbiased.

The largest potential source of bias is likely produced by the arbitrary grouping of strata in an attempt to eliminate zero values and produce greater sample sizes. In most instances, the effect of these groupings and subsequent extrapolation/expansion, although impossible to quantify, could be qualitatively assessed through observations by field personnel and discussions with anglers.

In the Crowsnest River study section, zero values were obtained for angler counts in several strata. These values are considered unrealistic and likely resulted from low sampling frequency in these strata. For example, it is considered very unlikely that no anglers fished at Site CN4 in all daily time periods during the 42 available weekdays in the Sep.-Oct. period (Appendix F11). The overall result of zero values is an underestimation of angler effort for that particular strata.

The underestimation of total angler effort likely produces a corresponding underestimation of total anglers. An additional source of potential error is introduced into the estimate of total anglers through the estimation of a completed angler trip. The estimates of total anglers were calculated by dividing the total number of estimated angler hours by the mean length of a completed angler trip. An overestimation of completed trip length, therefore, underestimates angler numbers (and vice versa). In the present study, evidence to suggest a specific bias in the mean completed trip length was not obtained; however, the low sample sizes of completed anglers increases the likelihood of error in the estimates.

An underestimation of angler effort would also result in an underestimation of catch, since catch estimates were derived by multiplying the CPUE (catch/angler hour) from interviewed anglers by the estimated angler effort. The major source of potential error affecting this extrapolation is the low sample sizes of interviewed anglers in some strata that necessitated grouping of interview data and possibly masked differences in catch rates among strata.

The estimates of sportfish catch in the Crowsnest River are considered as reasonable estimates for the fishery. However, the estimated catch of rainbow trout in the Crowsnest River appears to be excessive in relation to the population estimates (i.e., range of 3700-4490; text Table 7.11). This discrepancy may be explainable by one, or all of the following: 1) the inclusion of released fish in angler CPUE and subsequent catch estimates, 2) the capture selectivity of the electrofishing procedure that is negatively biased towards juvenile trout, 3) the inclusion of data from sites CN6 and CN7 in the total catch estimates but not in the population estimates, 4) the potential for fish attraction and concentration in the CN6 area, and 5) inaccuracies in either the harvest or population estimates.

Fish that are captured and released by anglers became available for subsequent capture by different anglers and therefore could conceivably be included more than once in CPUE calculations. During electrofishing surveys, numerous small rainbow trout were observed exhibiting evidence of previous capture (e.g., torn, deformed, or scarred jaws, damaged eyes, etc.) and either having escaped or been released. Evidence for the latter was provided by numerous anglers that commented a sizeable portion of their reported catch consisted of small rainbow trout that had been released.

Juvenile rainbow trout in the 150 to 200 mm size range are very susceptible to angling due to their aggressive feeding habits. These same individuals, however, are less susceptible to capture by electrofishing gear due to their small size (i.e., electrofishing efficiency being directly related to body surface area), quick avoidance reactions, and high association with cover. As a result of these factors, this size class was likely substantially underestimated in the population estimates and overestimated in angler catches. Additionally, population estimates were available only for the section of the Crowsnest River below km 15.4. The section of river from km 15.4 upstream to the falls (km 16.1) represents the section utilized most heavily by anglers at CN6. Electrofishing results from the canyonous section in ES3 (immediately downstream of CN6) indicated rainbow trout juveniles in the 150-250 mm size class were abundant in this section. Juvenile rainbow trout were likely just as abundant and possibly considerably more abundant in the 0.7 km section of the Crowsnest River between the upstream boundary of ES3 and Lundbreck Falls. The falls are an impassible barrier to upstream fish movement and as such fish would tend to concentrate below them. Also, the high gradient habitat below the falls, characterized by numerous chutes, ledges, plunge pools, and boulder-garden rapids, is more suited for rearing use by juvenile trout than for holding/feeding activities of adults. These factors suggest a sizeable population of juvenile rainbow trout may inhabit the Crowsnest River at CN6. The presence of a large juvenile population, susceptible to angler pressure combined with the high number of anglers fishing in the area and catching and releasing these same juveniles may account in part for the high catch estimates at this site.

1.4.2 Oldman River

The major source of underestimation in the Oldman River study section results from the absence of anglers on WD day-types at OR3 during the Sep.-Oct. period. For OR3, the absence of anglers from all strata in the Sep.-Oct. period was considered unrealistic. In an attempt to reduce underestimation of angler effort at this site, the ratio of effort between the August and Sep.-Oct. periods recorded at OR1 was applied to OR3 (Table 8.9). Although the accuracy of this extrapolation is suspect, it is considered a more realistic value than zero. Additional underestimation occurs from the several values of 0 anglers recorded during morning (MOR) strata, although the actual angler use during these time periods likely was low, particularly in the Sep.-Oct. period.

1.4.3 Castle River

In the Castle River, the low overall angler use at all access sites resulted in numerous strata with angler effort values of zero (Appendix F10). The absence of anglers from Site CA4 for all strata necessitated the application of the extrapolation procedure described in Section 1.4.2. The total catch estimates for the Castle River, however, are considered to overestimate the actual catch in this study section. The CPUE's for both mountain whitefish and rainbow trout were based on data from a total of 10 interviewed anglers, of which 7 were interviewed at CA5. The low sample size increases the possibility that the recorded success rates were biased, in this case towards more successful anglers. All of the anglers interviewed at CA5 were local residents (i.e., from Lundbreck, Pincher Creek, or the Crowsnest Pass area) who would likely be more successful than anglers unfamiliar with the area. This bias likely produces an overestimate of catch, particularly for mountain whitefish at CA5, and also at the other Castle River sites, as CPUE's from CA5 were used to extrapolate catch estimates at CA1 & 2 and CA4 (due to the low numbers of interviewed anglers at these sites). Although the degree of overestimation of the catch cannot be determined at this time, electrofishing results in the Sep.-Oct. period for Site CN4 and CN1 & 2 suggest that for these sites within the fall period, it may be substantial (i.e., 50 to 60%).

Appendix F2 Form No. ____________________

OLDMAN RIVER DAM STUDY AREA - CREEL SURVEY

River/Stream ______________________________ Location ___________________________

Date ________________ Weather ____

____

Survey Interval ____________ h to ____________ h

Start: No. Anglers __________ End: No. Anglers __________

No. Vehicles __________ No. Vehicles __________

Angler No.	Angler effort (h)	Primary Species sought	Angler Catch (#)						Method	Angler Residence	Prev. Visits (1985)	Fishing Rating	
			RT	BT	CT	DV	MW	Others				Day.	OV.

Methods: SF (spin fishing), BF (bait fishing), FF (fly fishing), other (specify).

Fish Species:

BT - brown trout
CT - cutthroat trout
DV - Dolly Varden
MW - Mountain whitefish
Others (specify)

Fishing Rating:

Day. (survey day)
OV. (overall)

E = excellent
G = good
F = fair
P = poor

Comments:

Recorder: ____________________

Appendix F3 Creel survey summary of anglers recorded in the Upper Crowsnest River study section, 2 August to 3 November 1985.

		Angler Counts						
Date	Sample[a] Period	No. Anglers Observed	No. Interviewed	No. Vehicles Observed	Total[b] Anglers	Survey Period	Total Survey Time (h)	Weather
Aug. 2	AFT	5	0	5	5	1630-1730	1.0	cool/raining/windy
3	AFT	8	0	9	14	1600-1700	1.0	warm/cloudy/breeze
4	MOR	1	1	3	4	0845-1000	1.2	warm/cloudy/windy
4	AFT	10	9	10	13	1330-1530	2.0	warm/cloudy/windy
5	EVE	11	5	6	14	1800-1900	1.0	warm/hazy/breeze
6	MOR	5	0	3	5	0930-1030	1.0	warm/clear/breeze
9	AFT	1	0	1	1	1600-1700	1.0	cool/cloudy/windy
10	MOR	9	0	7	12	1100-1145	0.8	cool/raining/breeze
11	EVE	10	3	6	10	1845-1930	0.8	cool/cloudy/windy
14	MOR	6	2	4	8	1130-1215	0.8	warm/hazy/breeze
Total	MOR = 4 AFT = 4 EVE = 2	66	20	54	86			
16[c]	EVE	26	10	16	26	1805-2105	3.0	warm/clear/calm
18	AFT	26	15	16	26	1315-1615	3.0	warm/clear/calm
20	EVE	12	0	8	12	1820-2115	3.0	cool/raining/breeze
23	AFT	19	10	12	19	1300-1600	3.0	warm/clear/breeze
24	EVE	27	15	17	27	1800-2100	3.0	warm/cloudy/breeze
31	MOR	14	0	9	14	0930-1200	2.5	not recorded
Sep. 1	AFT	48	0	32	48	1300-1545	2.8	not recorded
22	EVE	3	2	2	3	1700-2015	3.2	cool/showers/calm
29	AFT	3	3	2	3	1300-1600	3.0	warm/clear/calm
30	EVE	1	1	1	1	1700-2015	3.2	cool/clear/windy
Oct. 12	MOR	3	3	3	3	0900-1215	3.2	cold/clear/breeze
17	AFT	7	5	5	7	1300-1600	3.0	warm/clear/windy
19	EVE	5	5	2	5	1600-1920	3.3	cool/showers/windy
23	MOR	1	1	1	1	0915-1200	2.8	cool/cloudy/windy
25	MOR	2	0	1	2	0930-1230	3.0	cold/raining/breeze
25	EVE	0	0	0	0	1615-1900	2.8	cold/raining/windy
27	AFT	9	9	7	9	1300-1615	3.2	warm/clear/windy
Nov. 3	MOR	3	3	2	3	0930-1100	1.5	cold/snow/windy
Total	MOR = 5 AFT = 6 EVE = 7	209	82	136	209			

[a] MOR = Morning; AFT = Afternoon; EVE = Evening.

[b] Derived from the numbers of observed anglers, plus angler numbers estimated from vehicle counts (based on a mean of 1.6 anglers per vehicle).

[c] Start of systematic census.

Appendix F3 Creel survey summary of anglers recorded in the Upper Crowsnest River study section, 2 August to 3 November 1985.

		Angler Counts						
Date	Sample[a] Period	No. Anglers Observed	No. Interviewed	No. Vehicles Observed	Total[b] Anglers	Survey Period	Total Survey Time (h)	Weather
Aug. 2	AFT	5	0	5	5	1630-1730	1.0	cool/raining/windy
3	AFT	8	0	9	14	1600-1700	1.0	warm/cloudy/breeze
4	MOR	1	1	3	4	0845-1000	1.2	warm/cloudy/windy
4	AFT	10	9	10	13	1330-1530	2.0	warm/cloudy/windy
5	EVE	11	5	6	14	1800-1900	1.0	warm/hazy/breeze
6	MOR	5	0	3	5	0930-1030	1.0	warm/clear/breeze
9	AFT	1	0	1	1	1600-1700	1.0	cool/cloudy/windy
10	MOR	9	0	7	12	1100-1145	0.8	cool/raining/breeze
11	EVE	10	3	6	10	1845-1930	0.8	cool/cloudy/windy
14	MOR	6	2	4	8	1130-1215	0.8	warm/hazy/breeze
Total	MOR = 4 AFT = 4 EVE = 2	66	20	54	86			
16[c]	EVE	26	10	16	26	1805-2105	3.0	warm/clear/calm
18	AFT	26	15	16	26	1315-1615	3.0	warm/clear/calm
20	EVE	12	0	8	12	1820-2115	3.0	cool/raining/breeze
23	AFT	19	10	12	19	1300-1600	3.0	warm/clear/breeze
24	EVE	27	15	17	27	1800-2100	3.0	warm/cloudy/breeze
31	MOR	14	0	9	14	0930-1200	2.5	not recorded
Sep. 1	AFT	48	0	32	48	1300-1545	2.8	not recorded
22	EVE	3	2	2	3	1700-2015	3.2	cool/showers/calm
29	AFT	3	3	2	3	1300-1600	3.0	warm/clear/calm
30	EVE	1	1	1	1	1700-2015	3.2	cool/clear/windy
Oct. 12	MOR	3	3	3	3	0900-1215	3.2	cold/clear/breeze
17	AFT	7	5	5	7	1300-1600	3.0	warm/clear/windy
19	EVE	5	5	2	5	1600-1920	3.3	cool/showers/windy
23	MOR	1	1	1	1	0915-1200	2.8	cool/cloudy/windy
25	MOR	2	0	1	2	0930-1230	3.0	cold/raining/breeze
25	EVE	0	0	0	0	1615-1900	2.8	cold/raining/windy
27	AFT	9	9	7	9	1300-1615	3.2	warm/clear/windy
Nov. 3	MOR	3	3	2	3	0930-1100	1.5	cold/snow/windy
Total	MOR = 5 AFT = 6 EVE = 7	209	82	136	209			

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[a] MOR = Morning; AFT = Afternoon; EVE = Evening.

[b] Derived from the numbers of observed anglers, plus angler numbers estimated from vehicle counts (based on a mean of 1.6 anglers per vehicle).

[c] Start of systematic census.

Appendix F4 Creel survey summary of anglers recorded in the Lower Crowsnest River study section, 2 August to 28 October 1985.

		Angler Counts						
Date	**Sample[a] Period**	**No. Anglers Observed**	**No. Interviewed**	**No. Vehicles Observed**	**Total[b] Anglers**	**Survey Period**	**Total Survey Time (h)**	**Weather**
Aug. 2	AFT	0	0	0	0	1600-1630	0.5	cool/raining/windy
3	EVE	1	0	1	1	1700-1735	0.6	warm/clear/breeze
4	AFT	12	3	10	22	1530-1600	0.5	warm/cloudy/windy
5	AFT	3	3	3	5	1530-1645	1.7	warm/hazy/breeze
6	AFT	2	0	1	2	1430-1530	1.0	warm/clear/breeze
9	EVE	2	0	4	6	1700-1830	1.5	cool/cloudy/windy
10	MOR	2	0	2	4	1145-1215	0.5	cool/raining/breeze
11	EVE	12	5	9	17	1645-1845	2.0	cool/cloudy/windy
14	MOR	0	0	1	2	0830-0930	1.0	warm/hazy/breeze
Total	MOR = 2 AFT = 4 EVE = 3	34	11	31	59			
17[c]	AFT	6	5	3	6	1400-1600	2.0	warm/clear/breeze
19	AFT	1	0	1	1	1300-1605	3.0	warm/clear/breeze
21	EVE	3	0	2	3	1800-2100	3.0	cool/cloudy/calm
22	MOR	0	0	0	0	0900-1200	3.0	cool/clear/breeze
25	MOR	0	0	0	0	1000-1200	2.0	warm/clear/windy
26	EVE	0	0	0	0	1800-2100	3.0	warm/hazy/calm
31	EVE	9	0	5	9	1800-2100	3.0	not recorded
Sep. 2	MOR	7	0	4	7	0900-1200	3.0	not recorded
18	AFT	4	3	3	4	1300-1600	3.0	cool/cloudy/calm
21	MOR	2	2	2	2	0900-1220	3.3	cool/showers/breeze
26	EVE	0	0	0	0	1700-2000	3.0	cool/showers/windy
28	AFT	0	0	0	0	1300-1600	3.0	warm/clear/calm
Oct. 1	MOR	2	2	2	2	0900-1230	3.5	cool/cloudy/windy
9	EVE	1	0	1	1	1700-2000	3.0	cold/cloudy/windy
13	EVE	0	0	0	0	1600-1900	3.0	cold/cloudy/windy
14	AFT	0	0	0	0	1300-1615	3.2	cool/cloudy/windy
20	MOR	2	2	1	2	0900-1230	3.5	cool/clear/calm
21	MOR	0	0	0	0	1000-1230	2.5	warm/cloudy/calm
24	MOR	0	0	0	0	0930-1200	2.5	cool/clear/windy
26	EVE	0	0	0	0	1600-1910	3.2	cold/cloudy/windy
28	MOR	0	0	0	0	0900-1230	3.5	cold/snow/windy
Total	MOR = 9 AFT = 5 EVE = 7	37	14	24	37			

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[a] MOR = Morning; AFT = Afternoon; EVE = Evening.

[b] Derived from the numbers of observed anglers, plus angler numbers estimated from vehicle counts (based on a mean of 1.6 anglers per vehicle).

[c] Start of systematic census.

Appendix F5 Creel survey summary of anglers recorded in the Oldman River study section, 2 August to 3 November 1985.

		Angler Counts						
Date	Sample[a] Period	No. Anglers Observed	No. Interviewed	No. Vehicles Observed	Total[b] Anglers	Survey Period	Total Survey Time (h)	Weather
Aug. 2	AFT	1	1	1	1	1400-1500	1.0	warm/hazy/calm
3	EVE	1	0	1	1	1745-1845	1.0	warm/clear/breeze
4	MOR	1	1	1	1	1130-1230	1.0	warm/clear/windy
4	AFT	1	0	4	6	1240-1630	3.8	warm/clear/windy
5	AFT	7	0	5	9	1230-1330	1.0	warm/sunny/breeze
5	EVE	3	0	2	3	1730-1750	0.3	warm/sunny/breeze
6	EVE	3	0	1	3	1820-1930	1.2	warm/cloudy/breeze
9	AFT	0	0	2	3	1400-1450	0.8	cool/cloudy/windy
10	AFT	0	0	0	0	1420-1430	0.2	cool/raining/breeze
10	EVE	2	0	5	7	1630-1745	1.3	cool/raining/breeze
11	MOR	2	2	2	2	1030-1230	2.0	warm/clear/calm
11	AFT	14	9	8	14	1230-1430	2.0	warm/clear/calm
14	AFT	5	2	8	13	1500-1600	1.0	warm/cloudy/windy
14	EVE	5	0	2	5	2100-2110	0.2	cool/raining/breeze
15	MOR	0	0	0	0	0930-1010	0.7	cold/raining/windy
Total	MOR = 3 AFT = 7 EVE = 5	45	15	42	68			
18[c]	EVE	3	2	3	3	1800-2100	3.0	warm/clear/calm
20	AFT	13	13	4	13	1300-1620	3.3	warm/clear/breeze
21	MOR	3	0	2	3	0900-1200	3.0	cool/cloudy/calm
23	EVE	6	3	5	6	1800-2100	3.0	warm/clear/calm
24	MOR	8	2	13	21	0915-1200	2.8	warm/hazy/breeze
Sep. 21	AFT	4	2	3	6	1245-1645	4.0	cool/raining/breeze
29	EVE	1	1	1	1	1635-2015	3.6	cool/clear/breeze
Oct. 9	MOR	0	0	0	0	0900-1200	3.0	cold/clear/windy
13	MOR	9	9	5	9	0900-1230	3.5	cold/clear/windy
14	EVE	0	0	0	0	1630-1930	3.0	cold/cloudy/windy
17	EVE	0	0	0	0	1610-1915	3.1	cool/clear/windy
19	AFT	21	21	14	21	1200-1530	3.5	cool/cloudy/windy
21	AFT	9	9	6	9	1300-1605	3.1	warm/clear/calm
22	AFT	5	4	3	5	1200-1530	3.5	warm/clear/windy
24	AFT	3	3	3	3	1210-1525	3.2	cold/clear/calm
26	MOR	9	9	5	9	0900-1230	3.5	cold/cloudy/calm
28	EVE	0	0	0	0	1600-1905	3.1	cool/clear/windy
Nov. 2	MOR	4	4	3	4	0930-1230	3.0	cold/snow/windy
2	AFT	9	9	5	9	1230-1630	4.0	cold/snow/windy
3	AFT	3	3	2	3	1230-1600	3.5	cold/snow/windy
Total	MOR = 6 AFT = 8 EVE = 6	110	94	77	125			

[a] MOR = Morning; AFT = Afternoon; EVE = Evening.

[b] Derived from the numbers of observed anglers, plus angler numbers estimated from vehicle counts (based on a mean of 1.6 anglers per vehicle).

[c] Start of systematic census.

Appendix F6 Creel survey summary of anglers recorded in the Castle River study section, 2 August to 27 October 1985.

		Angler Counts						
Date	Sample[a] Period	No. Anglers Observed	No. Interviewed	No. Vehicles Observed	Total[b] Anglers	Survey Period	Total Survey Time (h)	Weather
Aug. 2	EVE	0	0	1	2	1900-1930	0.5	warm/cloudy/calm
3	AFT	0	0	0	0	1400-1605	2.1	warm/clear/breeze
3	EVE	0	0	0	0	1730-1745	0.3	warm/clear/breeze
4	MOR	8	2	4	8	1030-1130	1.0	warm/cloudy/windy
4	EVE	2	0	1	2	1600-1620	0.3	warm/cloudy/windy
5	EVE	5	0	2	5	1650-2000	3.2	warm/cloudy/windy
6	MOR	0	0	0	0	1130-1230	1.0	warm/clear/calm
9	AFT	0	0	0	0	1500-1600	1.0	cool/cloudy/windy
10	MOR	0	0	0	0	1000-1220	2.3	cool/raining/calm
10	AFT	0	0	0	0	1230-1300	0.5	cool/raining/calm
11	EVE	0	0	0	0	1945-2115	1.5	cool/raining/breeze
14	AFT	4	0	5	5	1330-1430	1.0	warm/clear/breeze
14	EVE	0	0	0	0	1830-1900	0.5	warm/clear/breeze
Total	MOR = 3 AFT = 4 EVE = 6	19	2	13	22			
17[c]	MOR	0	0	0	0	0850-1200	3.2	cool/clear/calm
19	EVE	3	0	1	3	1800-2020	3.3	warm/clear/breeze
22	AFT	2	2	4	5	1300-1600	3.0	warm/clear/breeze
25	EVE	5	1	3	5	1800-2100	3.0	warm/clear/windy
26	MOR	2	2	1	2	0900-1200	3.0	cool/cloudy/breeze
30	EVE	0	0	2	3	1800-2100	3.0	cool/cloudy/breeze
Sep. 1	EVE	11	0	4	11	1800-2100	3.0	not recorded
18	EVE	0	0	0	0	1700-2000	3.0	cool/clear/calm
22	AFT	3	3	2	3	1245-1615	3.5	cool/raining/calm
26	MOR	0	0	0	0	0900-1220	3.3	warm/clear/windy
28	MOR	1	1	1	1	0850-1210	3.3	warm/clear/calm
30	AFT	0	0	1	2	1250-1610	3.3	warm/clear/calm
Oct. 1	EVE	0	0	1	2	1700-2010	3.2	cool/clear/windy
12	EVE	0	0	0	0	1600-1915	3.2	cool/cloudy/windy
20	AFT	0	0	0	0	1300-1615	3.2	warm/clear/calm
23	AFT	0	0	0	0	1220-1520	3.0	cool/clear/windy
25	AFT	0	0	0	0	1300-1600	3.0	cool/raining/windy
27	EVE	0	0	0	0	1630-1930	3.0	cool/clear/windy
Total	MOR = 4 AFT = 6 EVE = 8	27	9	20	37			

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[a] MOR = Morning; AFT = Afternoon; EVE = Evening.

[b] Derived from the numbers of observed anglers, plus angler numbers estimated from vehicle counts (based on a mean of 1.6 anglers per vehicle).

[c] Start of systematic census.

Appendix F7 Estimates of total angler hours and total anglers fishing in the Upper Crowsnest River study section, August to October 1985.

			WEEKDAYS (WD)					WEEKEND DAYS (WE)					COMBINED	
Month	Site	Period	$\bar{x}$ Angler Hours per Day	No. Available Period Days	No. Days Sampled	Est. Angler Hour Total	Est.[a] Angler Total	$\bar{x}$ Angler Hours per Day	No. Available Period Days	No. Days Sampled	Est. Angler Hour Total	Est.[a] Angler Total	Total Angler Hours	Total[a] Anglers
Aug.	CN4	MOR	4.0	21	2	84.0	16	8.0	10	2	80.0	16	164.0	32
		AFT	6.0	21	2	126.0	25	9.3	10	3	93.0	18	219.0	43
		EVE	7.5	21	4	157.5	31	13.3	10	3	133.0	26	290.5	57
		Total				367.5	72				306.0	60	673.5	132
	CN5	MOR	0	21	2	0	0	4.0	10	2	40.0	8	40.0	8
		AFT	8.0	21	2	168.0	33	2.7	10	3	27.0	5	195.0	38
		EVE	5.0	21	4	105.0	20	13.3	10	3	133.0	26	238.0	46
		Total				273.0	53				200.0	39	473.0	92
	CN6	MOR	8.0	21	2	168.0	33	26.0	10	2	260.0	51	428.0	84
		AFT	24.0	21	2	504.0	98	45.3	10	3	453.0	88	957.0	186
		EVE	35.0	21	4	735.0	144	50.0	10	3	500.0	98	1235.0	242
		Total				1407.0	275				1213.0	237	2620.0	512
	CN7	MOR	14.0	21	2	294.0	57	14.7	10	2	147.0	29	441.0	86
		AFT	10.0	21	2	210.0	41	13.3	10	3	133.0	26	343.0	67
		EVE	7.5	21	4	157.5	31	10.0	10	3	100.0	20	257.5	51
		Total				661.5	129				380.0	75	1041.5	204
AUGUST TOTAL						2709.0	529				2099.0	411	4808.0	940
Sep.-Oct.	CN4	MOR	0	42	2	0	0	0	19	2	0	0	0	0
		AFT/EVE[b]	0	84	3	0	0	7.2	38	5	273.6	87	273.6	87
		Total				0	0				273.6	87	273.6	87
	CN5	MOR	0	42	2	0	0	0	19	2	0	0	0	0
		AFT/EVE	1.3	84	3	109.0	35	1.6	38	5	60.8	19	169.8	54
		Total				109.0	35				60.8	19	169.8	54
	CN6	MOR	6.0	42	2	252.0	80	12.0	19	2	228.0	72	480.0	152
		EVE/AFT	12.0	84	3	1008.0	320	41.6	38	5	1580.8	502	2588.8	822
		Total				1260.0	400				1808.8	574	3068.8	974
	CN7	MOR	0	42	2	0	0	0	19	2	0	0	0	0
		AFT/EVE	0	84	3	0	0	4.0	38	5	152.0	48	152.0	48
		Total				0	0				152.0	48	152.0	48
SEP.-OCT. TOTAL						1369.0	435				2295.2	728	3664.2	1163
COMBINED TOTAL						4078.0	964				4394.2	1139	8472.2	2103

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[a] Calculated by dividing the total estimated angler hours by the mean length of a completed angler trip: in AUG. $\bar{x}$ = 5.12 hours (based on 9 completed trips from the Upper Crowsnest River; WE and WD data combined). In SEP.-OCT. $\bar{x}$ = 3.15 hours (based on 13; completed trips from both Crowsnest River study sections; WE and WD data combined).

[b] AFT and EVE periods combined to provide adequate (i.e., N > 2) sample sizes (2 AFT and 1 EVE samples in WD day-types; 3 AFT and 2 EVE samples in WE day-types).

Appendix F8 Estimates of total angler hours and total anglers fishing in the Lower Crowsnest River study section, 1 August to 31 October 1985.

			WEEKDAYS (WD)					WEEKEND DAYS (WE)					COMBINED	
Month	Site	Period	$\bar{x}$ Angler Hours per Day	No. Available Period Days	No. Days Sampled	Est. Angler Hour Total	Est.[a] Angler Total	$\bar{x}$ Angler Hours per Day	No. Available Period Days	No. Days Sampled	Est. Angler Hour Total	Est.[a] Angler Total	Total Angler Hours	Total[a] Anglers
Aug.	CN1&2	MOR	0	21	2	0	0	0	10	2	0	0	0	0
		AFT	0	21	4	0	0	4.0	10	3	40.0	8	40.0	8
		EVE	3.3	21	3	69.3	13	6.7	10	3	67.0	13	136.3	26
		Total				69.3	13				107.0	21	176.3	34
	CN3	MOR	4.0	21	2	84.0	16	8.0	10	2	80.0	15	164.0	31
		AFT	5.0	21	4	105.0	20	40.0	10	3	400.0	76	505.0	96
		EVE	13.3	21	3	279.3	53	38.3	10	3	383.0	73	662.3	126
		Total				468.3	89				863.0	164	1331.3	253
AUGUST TOTAL						537.6	102				970.0	185	1507.6	287
Sep.-Oct	CN1&2	MOR	2.0	42	4	84.0	27	5.3	19	3	100.7	32	184.7	59
		AFT/EVE[b]	1.3	84	3	109.2	35	0	38	4	0	0	109.2	35
		Total				193.2	62				100.7	32	293.9	94
	CN3	MOR	0	42	4	0	0	9.3	19	3	176.7	56	176.7	56
		AFT/EVE	5.3	84	3	445.2	141	0	38	4	0	0	445.2	141
		Total				445.2	141				176.7	56	621.9	197
SEP.-OCT. TOTAL						638.4	203				277.4	88	915.8	291
COMBINED TOTAL						1176.0	305				1247.4	273	2423.4	578

[a] Calculated by dividing the total estimated angler hours by the mean length of a completed angler trip: in AUG. $\bar{x}$ = 5.25 hours (based on 10 completed trips from the Lower Crowsnest River; WE and WD data combined). In SEP.-OCT. $\bar{x}$ = 3.15 hours (based on 13; completed trips in both Crowsnest River study sections; WE and WD data combined).

[b] AFT and EVE periods combined (1 AFT and 2 EVE samples in WD day-types; 3 AFT and 1 EVE samples in WE day-types).

Appendix F9 Estimates of total angler hours and total anglers fishing in the Oldman River study section, August to October 1985.

			WEEKDAYS (WD)					WEEKEND DAYS (WE)					COMBINED	
Month	Site	Period	$\bar{x}$ Angler Hours per Day	No. Available Period Days	No. Days Sampled	Est. Angler Hour Total	Est.[a] Angler Total	$\bar{x}$ Angler Hours per Day	No. Available Period Days	No. Days Sampled	Est. Angler Hour Total	Est.[a] Angler Total	Total Angler Hours	Total[a] Anglers
Aug.	OR1	MOR	6.0	21	2	126.0	41	12.0	10	2	120.0	39	246.0	80
		AFT	36.0	21	4	756.0	244	32.0	10	2	320.0	103	1076.0	347
		EVE	18.3	21	3	384.3	124	5.0	10	3	50.0	16	434.3	140
		Total				1266.3	409				490.0	158	1756.3	567
	OR2	MOR	0	21	2	0	0	0	10	2	0	0	0	0
		AFT	12.0	21	4	252.0	81	16.0	10	2	160.0	52	412.0	133
		EVE	2.5	21	2	52.5	17	10.0	10	3	100.0	32	152.5	49
		Total				304.5	98				260.0	84	564.5	182
	OR3	MOR	0	21	2	0	0	36.0	10	2	360.0	116	360.0	116
		AFT	4.0	21	3	84.0	27	10.0	10	2	100.0	32	184.0	59
		EVE	7.5	21	2	157.5	51	8.3	10	3	83.0	27	240.5	78
		Total				241.5	78				543.0	175	784.5	253
AUGUST TOTAL						1812.3	585				1293.0	417	3105.3	1002
Sep.-Oct.	OR1	MOR/AFT[b]	15.0	84	4	1260.0	406	35.0	38	4	1330.0	429	2590.0	835
		EVE	0	42	2	0	0	0	19	2	0	0	0	0
		Total				1260.0	406				1330.0	429	2590.0	835
	OR2	MOR/AFT	0	84	4	0	0	2.0	38	4	76.0	24	76.0	24
		EVE	0	42	2	0	0	2.0	19	2	38.0	12	38.0	12
		Total				0	0				114.0	36	114.0	36
	OR3	MOR/AFT	0	84	4	0	0	0	38	4	0	0	0	0
		EVE	0	42	2	0	0	0	19	2	0	0	0	0
		Total				0	0				0	0	0	0
SEP.-OCT. TOTAL						1260.0	406				1444.0	465	2704.0	871
COMBINED TOTAL						3072.3	991				2737.0	882	5809.3	1873

[a] Calculated by dividing the total estimated angler hours by the mean length of a completed angler trip ($\bar{x}$ = 3.1 hours; based on 15 completed trips from OR1; all months day-types, and periods combined).

[b] MOR and AFT periods combined (1 MOR and 3 AFT samples in WD day-types; 2 MOR and 2 AFT samples in WE day-types).

Appendix F10 Estimates of total angler hours and total anglers fishing in the Castle River study section, August to October 1985.

			WEEKDAYS (WD)					WEEKEND DAYS (WE)					COMBINED	
Month	Site	Period	$\bar{x}$ Angler Hours per Day	No. Available Period Days	No. Days Sampled	Est. Angler Hour Total	Est.[a] Angler Total	$\bar{x}$ Angler Hours per Day	No. Available Period Days	No. Days Sampled	Est. Angler Hour Total	Est.[a] Angler Total	Total Angler Hours	Total[a] Anglers
Aug.	CA1&2	MOR	0	21	2	0	0	0	10	2	0	0	0	0
		AFT	0	21	3	0	0	4.0	10	2	40.0	17	40.0	17
		EVE	5.0	21	3	105.0	45	8.3	10	3	83.0	36	188.0	81
		Total				105.0	45				123.0	53	228.0	98
	CA4	MOR	0	21	2	0	0	4.0	10	2	40.0	17	40.0	17
		AFT	2.7	21	3	56.7	24	0	10	2	0	0	56.7	24
		EVE	0	21	3	0	0	1.7	10	3	17.0	7	17.0	7
		Total				56.7	24				57.0	24	113.7	48
	CA5	MOR	4.0	21	2	84.0	36	12.0	10	2	120.0	52	204.0	88
		AFT	13.3	21	3	279.3	120	0	10	2	0	0	279.3	120
		EVE	8.3	21	3	174.3	75	6.7	10	3	67.0	29	241.3	104
		Total				537.6	231				187.0	81	724.6	312
AUGUST TOTAL						699.3	300				387.0	158	1066.3	458
Sep.-Oct.	CA1&2	MOR/AFT	2.0	84	4	168.0	72	0	38	3	0	0	168.0	72
		EVE	4.0	42	2	168.0	72	0	19	3	0	0	168.0	72
		Total				336.0	144				0	0	336.0	144
	CA4	MOR/AFT	0	84	4	0	0	0	38	3	0	0	0	0
		EVE	0	42	2	0	0	0	19	3	0	0	0	0
		Total				0	0				0	0	0	0
	CA5	MOR/AFT	0	84	4	0	0	5.3	38	3	201.4	86	201.4	86
		EVE	0	42	2	0	0	14.7	19	3	279.3	120	279.3	120
		Total				0	0				480.7	206	480.7	206
SEP-OCT. TOTAL						336.0	144				480.7	206	816.7	350
COMBINED TOTAL						1035.3	444				847.7	364	1883.0	808

[a] Calculated by dividing the total estimated angler hours by the mean length of a completed angler trip ($\bar{x}$ = 2.33 hours; based on 6 completed trips from CA5; all months, day-types, and periods combined).

[b] MOR and AFT periods combined (1 MOR and 3 AFT samples in WD day-types; 1 MOR and 2 AFT samples in WE day-types).

Appendix F11 Summary of catch and CPUE (catch/angler hour) for all interviewed anglers from the Upper Crowsnest River study section, August to October 1985.

				Mountain Whitefish			Brown Trout			Rainbow Trout			All Species[a]		
Site	Month	Total Anglers Int.	Total Effort (h)	Total Catch	$\bar{x}$ Catch/ Angler	CPUE[b]	Total Catch	$\bar{x}$ Catch/ Angler	CPUE	Total Catch	$\bar{x}$ Catch/ Angler	CPUE	Total Catch	$\bar{x}$ Catch/ Angler	CPUE
CN4	Aug. Sep.-Oct.	17 0	55.8 0.0	7 0	0.412 0.000	0.125 0.000	3 0	0.176 0.000	0.054 0.000	33 0	1.941 0.000	0.591 0.000	44 0	2.588 0.000	0.788 0.000
	Total	17	55.8	7	0.412	0.125	3	0.176	0.054	33	1.941	0.591	44	2.588	0.788
CN5	Aug. Sep-Oct.	6 1	8.8 3.0	0 1	0.000 1.000	0.000 0.333	0 0	0.000 0.000	0.000 0.000	4 3	0.667 3.000	0.454 1.000	4 4	0.667 4.000	0.454 1.333
	Total	7	11.8	1	0.143	0.085	0	0.000	0.000	7	1.000	0.593	8	1.143	0.678
CN6	Aug. Sep.-Oct.	42 27	82.2 79.3	9 11	0.214 0.407	0.110 0.138	2 2	0.048 0.074	0.024 0.025	12 53	0.286 1.963	0.146 0.668	24 68	0.571 2.518	0.292 0.858
	Total	69	161.5	20	0.290	0.124	4	0.058	0.025	65	0.942	0.402	92	1.333	0.570
CN7	Aug. Sep.-Oct.	5 1	18.5 2.5	1 2	0.200 2.000	0.054 0.800	0	0.000	0.000	0 3	0.000 3.000	0.000 1.200	2 5	0.400 5.000	0.108 2.000
	Total	6	21.0	3	0.500	0.143	0	0.000	0.000	3	0.500	0.143	7	1.667	0.333
Combined	Aug. Sep.-Oct	70 29	165.3 84.8	17 14	0.243 0.483	0.103 0.165	5 2	0.071 0.069	0.030 0.024	49 59	0.700 2.034	0.296 0.696	74 77	1.057 2.655	0.448 0.908
	Total	99	250.1	31	0.313	0.124	7	0.071	0.028	108	1.091	0.432	151	1.525	0.604

[a] includes incidental species captured (i.e., 2 cutthroat trout and 1 bull trout from CN6; 1 bull trout from CN4; 1 bull trout from CN7).
[b] CPUE calculated from the total catch divided by the total effort (hours).

Appendix F12 Summary of catch and CPUE (catch/angler hour) for all interviewed anglers from the Lower Crowsnest River study section, August to October 1985.

Site	Month	Total Anglers Int.	Total Effort (h)	Mountain Whitefish			Brown Trout			Rainbow Trout			All Species[a]		
				Total Catch	$\bar{x}$ Catch/ Angler	CPUE[b]	Total Catch	$\bar{x}$ Catch/ Angler	CPUE	Total Catch	$\bar{x}$ Catch/ Angler	CPUE	Total Catch	$\bar{x}$ Catch/ Angler	CPUE
CN1&2	Aug.	7	20.5	0	0.000	0.000	0	0.000	0.000	12	1.714	0.585	12	1.714	0.585
	Sep.-Oct.	6	14.0	0	0.000	0.000	0	0.000	0.000	11	1.833	0.786	11	1.833	0.786
	Total	13	34.5	0	0.000	0.000	0	0.000	0.000	23	1.769	0.667	23	1.769	0.667
CN3	Aug.	9	50.0	5	0.556	0.100	0	0.000	0.000	14	1.556	0.280	20	2.222	0.400
	Sep.-Oct.	3	4.5	3	1.000	0.667	0	0.000	0.000	1	0.333	0.222	4	1.333	0.889
	Total	12	54.5	8	0.667	0.147	0	0.000	0.000	15	1.250	0.275	24	2.000	0.440
Combined	Aug.	16	70.5	5	0.312	0.071	0	0.000	0.000	26	1.625	0.369	32	2.000	0.454
	Sep.-Oct.	9	18.5	3	0.333	0.162	0	0.000	0.000	12	1.333	0.649	15	1.667	0.811
	Total	25	89.0	8	0.320	0.090	0	0.000	0.000	38	1.520	0.427	47	1.880	0.528

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[a] Includes incidental species captured (i.e., 1 bull trout from CN3 in August).

[b] CPUE calculated from the total catch divided by total effort (hours).

Appendix F13 Summary of catch and CPUE (catch/angler hour) for all interviewed anglers from the Oldman River study section, August to November 1985.

Site	Month	Total Anglers Int.	Total Effort (h)	Mountain Whitefish			Brown Trout			Rainbow Trout			All Species[a]		
				Total Catch	$\bar{x}$ Catch/ Angler	CPUE[b]	Total Catch	$\bar{x}$ Catch/ Angler	CPUE	Total Catch	$\bar{x}$ Catch/ Angler	CPUE	Total Catch	$\bar{x}$ Catch/ Angler	CPUE
OR1	Aug.	29	73.7	74	2.552	1.004	1	0.034	0.014	5	0.172	0.068	80	2.759	1.086
	Sep.-Oct.	57	135.6	236	4.140	1.740	0	0.000	0.000	8	0.140	0.059	246	4.316	1.814
	Nov.[c]	16	26.5	76	4.750	2.868	0	0.000	0.000	3	0.188	0.113	79	4.938	2.981
	Total	102	235.8	386	3.784	1.637	1	0.010	0.004	16	0.157	0.068	405	3.971	1.718
OR2	Aug.	1	1.5	7	7.000	4.667	0	0.000	0.000	7	7.000	4.667	14	14.000	9.333
	Sep.-Oct	1	1.5	2	2.000	1.333	0	0.000	0.000	0	0.000	0.000	2	2.000	1.333
	Total	2	3.0	9	4.500	3.000	0	0.000	0.000	7	3.500	2.333	16	8.000	5.333
OR3	Aug.	5	11.2	1	0.200	0.089	0	0.000	0.000	7	1.400	0.625	8	1.600	0.714
	Sep.-Oct.	0	0.0	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	Total	5	11.2	1	0.200	0.089	0	0.000	0.000	7	1.400	0.625	8	1.600	0.714
Combined	Aug.	35	86.4	82	2.343	0.949	1	0.029	0.012	19	0.543	0.220	102	2.914	1.181
	Sep.-Oct.	58	137.1	238	4.103	1.736	0	0.000	0.000	8	0.138	0.058	248	4.276	1.955
	Nov.[c]	16	26.5	76	4.750	2.868	0			3	0.188	0.113	79	4.938	2.981
	Total	109	250.0	396	3.633	1.584	1	0.009	0.004	30	0.275	0.120	429	3.936	1.716

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[a] Includes incidental species captured (i.e., 2 suckers from OR1).

[b] CPUE calculated from the total catch divided by total effort (hours).

[c] Results from an access survey conducted at OR1 on 2 and 3 November 1985.

Appendix F14 Summary of catch and CPUE (catch/angler hour) for all interviewed anglers from the Castle River study section, August to October 1985.

				Mountain Whitefish			Rainbow Trout			All Species[a]		
Site	Month	Total Anglers Int.	Total Effort (h)	Total Catch	$\bar{x}$ Catch/ Angler	CPUE[b]	Total Catch	$\bar{x}$ Catch/ Angler	CPUE	Total Catch	$\bar{x}$ Catch/ Angler	CPUE
CA1&2	Aug	0	0.0	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	Sep.Oct.	0	0.0	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	Total	0	0.0	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
CA4	Aug.	3	3.0	0	0.000	0.000	1	0.300	0.333	1	0.300	0.333
	Sep.-Oct.	0	0.0	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	Total	3	3.0	0	0.000	0.000	1	0.300	0.333	1	0.300	0.333
CA5	Aug.	4	10.0	25	6.250	2.500	0	0.000	0.000	25	6.250	2.500
	Sep.-Oct.	4	7.0	14	3.500	2.000	2	0.500	0.286	18	4.500	2.571
	Total	8	17.0	39	4.875	2.294	2	0.250	0.118	44	5.500	2.588
Combined	Aug.	7	13.0	25	3.571	1.923	1	0.143	0.077	26	3.714	2.000
	Sep.-Oct.	4	7.0	14	3.500	2.000	2	0.500	0.286	18	4.500	2.571
	Total	11	20.0	39	3.545	1.950	3	0.273	0.150	44	4.000	2.200

[a] includes incidental species captured (i.e., 2 cutthroat trout from CA5).
[b] CPUE calculated from total catch divided by total effort (hours).

APPENDIX G

Water Temperature Summary

Appendix G Water temperatures in the Oldman River Dam Study Area, August to October 1985.

Date	Crowsnest River			Oldman River			Castle River		
	Time	Location (km)	Water Temp. (°C)	Time	Location (km)	Water Temp. (°C)	Time	Location (km)	Water Temp. (°C)
Aug. 18				1415	337.2	16.0			
19	1315	4.1	17.0						
20	1800	12.6	18.5						
21				1300	351.4	14.0			
22	1300	9.1	12.0						
25							1915	14.9	16.0
26	1800	2.0	17.0				1100	14.9	12.0
Sep. 18	1300	2.0	7.0				1700	27.5	8.0
20	1100	13.9	6.5						
21	1100	13.9	8.0	1300	309.6	7.0			
22	1700	12.6	6.0				1245	5.4	8.0
24	1030	13.9	6.0						
26	1700	2.0	7.0				1000	5.4	7.0
28	1300	2.0	7.0				1200	5.4	6.0
29	1345	15.6	6.0	1645	330.6	7.0			
30	1700	15.6	6.0				1300	5.4	6.0
Oct. 1	1815	12.6	7.5				1700	5.4	5.0
2	1045	10.3	6.0						
2	1345	4.1	7.0						
3				1000	327.0	4.5			
3				1730	325.0	7.5	1730	24.0	6.5
4	1315	9.1	7.5						
5	1830	9.1	8.5						
6							1145	24.0	4.0
7	1745	12.6	3.0						
8	1130	12.6	1.5						
9	1030	10.2	0.5						
8	1800	4.1	4.0						
9	1500	10.6	2.5	0900	330.6	1.0			
10	1030	4.9	1.5				1900	0.5	4.5
12	0945	12.6	2.0				1600	5.4	4.0
13	1600	2.0	2.0	0900	309.6	1.0			
14	1300	4.1	2.0	1630	330.6	2.0			
17	1000	13.9	4.5	1610	330.6	4.0			
19	1600	12.6	5.0	1050	339.0	5.0			
20	1200	12.6	5.0	1000	331.5	5.5	1300	5.4	3.0
20	1815	9.2	8.5						
21				1045	339.0	4.0			
21				1600	330.6	7.5			
22				1200	309.6	5.0	1000	14.9	4.5
23	1000	15.4	2.5				1230	5.4	2.0
23	1700	9.1	5.0						
24	0900	9.1	2.5						
24	1530	1.0	4.5	1215	309.6	3.0			
25	1630	12.6	4.0				1300	27.5	4.0
26	1600	4.1	3.0	0930	330.6	1.5			
27	1300	12.6	3.0				1015	24.0	5.5
28	1220	2.0	3.0	0930	351.4	4.0			